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Amateur Radio

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March 15 & 16

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by Drew Diamond VK3XU

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Amateur Radio

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Our Cover this month

A prime Field Day site? The view from the site chosen for the Spring VHF/UHF Field Day by Roger VK7ARN, John VK7ZZ and Garry VK7JGD on the Western Tiers, showing the VK7WCN mast supporting a 2 metre Yagi, a 2 m/70 cm listening antenna, a 6 metre Yagi and a 70 cm Yagi. The view is looking out to the north, at an elevation of 975 metres. Photo by John Gardner VK7ZZ.

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, 'How to write for Amateur Radio' is available from the National Office on receipt of a stamped self-addressed envelope.

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Back issues are available directly from the WIA National Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

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International Amateur Radio Union

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Editorial Comment

Peter Freeman VK3KAI

Amateur licence conditions

As expected, the ACMA Board approved the documents associated with amendments to the amateur Licence Conditions Determination. In time, there should be an updated single document published, incorporating the amendments into a single document. As I write this, it can be somewhat confusing for someone trying to decipher the regulations, as you need to refer to several separate documents.

Please take the time to read the summary of the changes that appears elsewhere in this issue.

The other awaited change that was approved at the same ACMA Board meeting was the establishment of a Class Licence for visiting amateurs. Brief details of that licence are given in the WIA News column in this issue. Why is this change important for Australian amateurs, as opposed to those visiting our shores? It marks an important step towards having reciprocal rights with the CEPT licence system, as noted by Michael Owen VK3KI in his Comment column. This should eventually make it much simpler for Australian amateurs visiting Europe.

I urge you all to read Comment, News and the article by VK3KI on the LCD amendments.

Field Day contests

It seems to be Field Day contest season. We had the Summer VHF/UHF Field Day contest in the middle of January and should expect to see the results soon. Coming up this month is the John Moyle Memorial National Field Day contest. Many are now referring to this contest as the "John Moyle" or the "John Moyle Field Day" – many in today's society are lazy with names.

This long-standing contest promotes activity from the field. It is open to home stations and field stations, each operating in separate sections. The rules were published in last month's issue of AR (see page 52) and are available on the WIA website.

If you have the chance, why not make the effort to try field operations? Even if you are only sitting in the motor vehicle or set up a very simple station, lots of fun can be had by working the better equipped field stations. Many clubs put significant effort into this contest, so some big signals can be heard on the VHF, UHF and microwave bands. Even if you can only get on-air from home for part of the contest, your contacts will be appreciated by the field stations.

The other type of Field Day

Now that the festive season has passed, we seem to be into the season of that other type of Field Day – the "hamfest" events are coming up thick and fast. In VK3, this year the season kicked off with the Centre Victoria Radiofest at Kyneton, which has moved to early February for 2008. The following weekend saw the Central Coast ARC event at Wyong. I am sure that both events will have been successful – despite the Wyong event being impacted by wet weather. The week after Wyong saw the event in Healesville, then a short gap to the EMDRC event on the second weekend in March. Of course, there are other similar events around the country, offering plenty of opportunities to get together and catch up with friends and to survey the new and pre-loved equipment on offer. I am sure that we will receive reports on many of these events in future issues.

I have also heard some people referring to their plans to attend what is perhaps the biggest of this type of event – the Dayton Hamvention held in May in Dayton Ohio. That is one event I would like to visit again – I managed a visit to the 2001 event. Visitor numbers in that year were down a little on the previous year, with around 21,000 attending! It is an amazing event, with a huge inside area packed with mainly commercial vendors and almost the entire car park around the stadium buildings taken up by the flea market vendors, offering a huge array of equipment. And there are other very significant overseas events, especially the Tokyo Ham Fair and the event at Friedrichshafen. Perhaps one day....

73

Peter VK3KAI

Michael Owen VK3KI

Important Decisions

In the "News" page this month there is news of three major matters affecting amateur radio addressed by the ACMA at its formal meeting on 7 February last.

One was the amendment to the amateur LCD, which is described in some detail in a separate article in this issue of AR.

The second was the WIS's successful expression of interest in relation to the outsourcing of certain services, including the provision of examination management services, the issue of certificates of proficiency and the management of call signs and has been selected to provide those services on ACMA's behalf.

The third is the issue of a class licence for visiting amateurs, the Radiocommunications (Overseas Amateurs Visiting Australia) Class Licence 2008.

The class licence allows an amateur visiting Australia to operate an amateur station in Australia for 90 days after each entry to Australia.

The class licence provides for five levels of privilege, depending on the overseas qualification of the visiting amateur. The levels of privilege range from what is the equivalent of the Australian Advanced licence to what is essentially a low power FM voice transceiver – a handheld operating between 146 and 148 MHz.

The overseas licences and qualifications are listed in a table on the ACMA website, the 'Table of Equivalent Qualifications and Licences' and against each listed overseas licence or qualification is the level of privilege granted by the class licence.

It has been the dream of many for a long time for the amateur licence to become, as Dick Baldwin W6RU, for a long time ARRL Secretary and later President of the International Amateur Radio Union, used to put it, just like an international driving licence.

Then, in 2003, when Article 25 of the ITU Radio Regulations was reviewed by the World Radiocommunications Conference of that year, a new provision was put in as follows:

25.9B § 5B An administration may determine whether or not to permit a person who has been granted a licence to operate an amateur station by another administration to operate an amateur station while that person is temporarily in its territory, subject to such conditions or restrictions it may impose

The purpose of that was to encourage administrations to allow visiting amateurs to operate without having to obtain a local licence. That was important because the Radio Regulations otherwise provided that a licence from the administration being visited was required.

The provision is not of assistance in Australia because our legislation, the Radiocommunications Act, requires all transmitters to be licensed, and the class licence is the solution to that requirement.

In fact, Australia has for many years been one of the most open and welcoming of countries so far as visiting amateurs were concerned.

Over the years many visiting amateurs have made favourable comment on the Australian approach, which was to enable the visiting amateur to visit the ACMA office at the port of entry into Australia, show the foreign documents, make a payment and walk out with a VK licence.

That ceased to be attractive when the ACMA shifted the amateur licensing function to Canberra and applications forwarding copies of documents and payment had to be sent in advance by mail.

Now the class licence allows the visiting amateur to operate without making any payment or obtaining an Australian licence, just using the home call followed by /VK followed by 'portable' and the location of the station.

Australia is not the first country to adopt such an approach. Already visiting Australian amateurs can operate in New Zealand and the USA on the basis of their Australian licence without doing more.

And the issue of the class licence should be the last step before Australian Advanced amateurs will be able to operate while visiting those CEPT countries party to T/R61-01.

CEPT is the European Conference of Postal and Telecommunications Administrations and has harmonised telecommunications legislation between member countries and so facilitated obtaining operating permission for amateurs during visits.

CEPT has already approved the Advanced syllabus as compliant with T/R 61-02. Now, as Australia has introduced the class licence, which covers holders of the CEPT licences, Australia has requested that its Advanced licence be included in the CEPT T/R 61-01 table of equivalencies.

Until that final formality has been completed, Australian amateurs cannot operate in the European countries, including the UK, without a local licence. Of course, Australia still has reciprocal agreements with a number of countries, though in many today it is very difficult to get such a licence.

I am delighted that we are continuing to welcome visiting amateurs in such a positive way, and I know from the many queries we get, very many Australians are just waiting for the day the Australian licence becomes a CEPT T/R 61-01 licence.

Since 2004 the WIA has expressed its concern at the delay in addressing the outsourcing issue, implementing the balance of the regulatory changes identified in the Outcomes and proceeding with an application to become a party to CEPT T/R 61 01.

Now, all of those concerns have been addressed.

The WIA appreciates that each of these matters involved significant and complex work. The WIA records its appreciation of Mark Loney, Executive Manager, Pricing & Policy Branch, ACMA, who established the structure that enabled the matters to addressed intensively and effectively, and gratefully acknowledge Alan Jordan and Andy Byrne who worked on the detailed implementation.

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WIA news

ACMA announces successful amateur outsourcing candidate

The WIA has repeatedly expressed its concern that its role as the manager of the amateur examination system had no tenure and therefore it did not have the security to justify its investment in the system.

The ACMA published its *Request for Expressions of Interest* in providing certain functions for the amateur service, including the management of amateur examinations, the issue of certificates of proficiency and certain administrative functions in relation to call signs, on 15 October 2007.

The ACMA *Request* required all Expressions of Interest to be lodged by 8 November, as was done by the WIA, and the "Indicative Timing" published by the ACMA in its *Request* indicated that the successful party as well as the unsuccessful parties, would be advised in December 2007.

In fact, that timetable was extended, but at its formal meeting on 7 February 2008 the Authority decided that the Expression of Interest submitted by the WIA met all the criteria it had established, and accordingly it selected the WIA to provide those services to the amateur community on its behalf. ACMA and the WIA will now seek to finalise contracts for the supply of the services identified.

The work involved in finalising the contract and the implementation of the arrangements may take some time.

ACMA issues class licence for visiting amateurs

The ACMA has issued a class licence to allow visiting amateurs to operate in Australia for up to ninety days using their home callsign followed by the suffix VK, followed by "portable" and then the location of the station, without doing anything more.

It came into effect on 14 February.

There are five levels of visitor licence, three matching the Australian Advanced, Standard and Foundation licences, a VHF licence, and finally, in effect, a 146 to 148 FM licence.

The privileges of each level are set out in the class licence.

ACMA will publish on its website a table showing equivalencies to the Australian visitor levels for different overseas licences.

The class licence for visiting amateurs does not allow Australian amateurs to operate in the CEPT countries, but it is hoped that CEPT will on the basis of that licence soon decide to allow Australian Advanced licensees to operate in the CEPT countries, some thirty two countries, mainly in Europe, using their Australian callsign.

We hope that there will be an article in a future issue of AR telling how Australian amateurs will be able to use their CEPT TR 61-01 licence (as it is called) in the CEPT countries.

The WIA has been in regular contact with the IARU Region 1 representative on the relevant CEPT Working Group, and will pass on any news as soon as it is received.

It is hoped that a copy of the class licence will be available on the WIA website on either Monday or Tuesday 11 and 12 of February.

ACMA amends Amateur LCD

In May 2004, following extensive consultation the ACA (now the ACMA) published the *Outcomes of the Review of Amateur Service Regulation* (the Outcomes) and while the restructure of Australian amateur licences took place in October 2005, the bulk of the other changes foreshadowed were not addressed.

The ACMA has now made the *Determination to amend the Amateur LCD* to make the last of changes foreshadowed in the Outcomes.

The amendments to the LCD are quite extensive.

An article on page 6 of this issue of AR describes the changes, and a copy of the *Amending Determination* is available on the WIA website.

In a short time, usually three or four weeks, a consolidated version of the *Amateur LCD* will be published. Then all the changes will be incorporated into a single document.

Because of these changes and the changes to the conditions under which amateurs visiting Australia may operate, the ACMA website is being extensively altered.

Nominations for WIA Director close

By a notice published in the December 2007 AR, Returning Officer David Wardlaw VK3ADW sought nominations for WIA Director.

Three Directors resign at the end of the next Annual General Meeting, and were eligible for re-election. They were Phil Wait VK2DKN, Trevor Quick VK5ATQ and Eddie Saunders VK6ZSE.

Eddie Saunders had been appointed a Director by the WIA Board from 1 December 2007 on the resignation of Robyn Edwards VK6XRE as a Director, taking the balance of Robyn's term.

Trevor Quick had announced that he did not wish to stand for re-election.

On the close of nominations on the 31 January 2008, the Returning Officer announced that there were three nominations to fill the 3 vacancies.

Accordingly, as Phil Wait, Eddie Saunders and Ron Bertrand VK2DQ were the only three nominations, they will be elected unopposed for two years from the close of the next Annual General Meeting in Broken Hill on 24 May 2008.

Sydney D-STAR Clubs announced

The WIA has been advised by the Radio and Electronics Association of Southern Tasmania (REAST) that the club did not consider it had the resources at this time to establish a D-STAR repeater to serve the Hobart area, and so Icom Australia has agreed to donate that repeater to the WIA as a second D-STAR repeater to serve the large Sydney area.

The WIA, after consultation with Icom Australia, has announced that two clubs have been identified as D-STAR clubs to serve the Sydney area.

The two clubs are the Manly Warringah Radio Society (Incorporated), and the Illawarra Amateur Radio Society Inc.

WIA Director Phil Wait, in making the announcement, said "I am delighted that these two clubs, with their locations providing exceptional coverage to the north and south of Sydney and with highly skilled and experienced members are supporting this project."

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A "Paddyboard" substrate for popular 8-pin surface mount chips

Drew Diamond VK3XU.

Many popular chip types, such as the NE602, are now only readily available in a SOIC-8 surface-mount package. And many newer useful chips, such as the LM5111 gate driver, are only available as an SOIC-8 (small outline integrated circuit - 8 pin). This trend looks likely to continue.

Generally, these tiny parts would be difficult for the amateur to work with using ordinary soldering equipment. However (thanks to a bright suggestion from David VK3IS), it is quite easy to make a paddyboard "substrate" carrier to accommodate such chips.

At the right in Photo 1 is a 20 x 20 mm rectangle of single-sided circuit board. The pads are formed upon the copper side of the board by carefully placing shallow saw cuts so that copper is removed at appropriate places. Sufficient copper pad material is thus provided for connection of wiring and other components as required.

The substrate may be held in a modellers' mitre box, which greatly aids in making clean, accurate cuts. In addition to the standard 90 and 45-degree slits, my mitre box has 60 and 65-degree slits, visible in Photo 2. The 65-degree slits (at the right-hand end of the box) are used for the SOIC-8 package.

An engineers' protractor is an ideal instrument as an aid in marking your mitre box for two crossed 65 degree slits. New slits are added with a junior hack-saw. The two new planes thus formed intersect at the centre line of the box.

When preparing a substrate, the first cut, which divides the chip each side, is made with a 'junior' hack-saw (top in Photo 3). The remaining three cuts should be done with a modellers' 'back-saw' (so-called because it cuts on the back stroke – lower in Photo 3).

Photo 1 shows an SOIC-8 chip and an ordinary 8-pin IC socket soldered upon substrates. The tip of a pair of bent long-nose pliers may be carefully rested upon the chip as a 'holder downer' third hand whilst the individual pins are carefully soldered. Using a magnifying glass, inspect your soldering for quality. Should a bridge (between pins) occur, simply remove the excess solder from the affected area with solder-wick, and solder again. The substrate may be super-glued to the main board in the usual manner, as described in Reference 1.

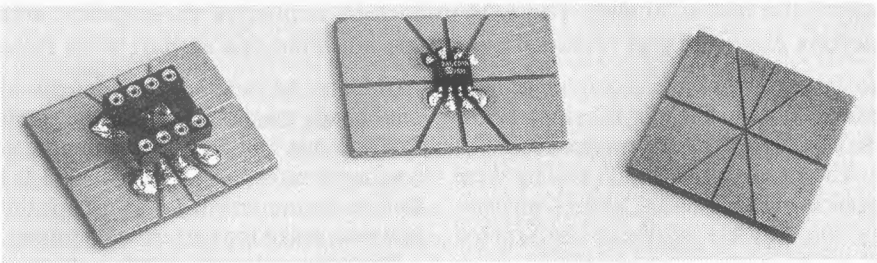

Photo 1: Substrates for 8-pin DIL socket (left), and SOIC-8 (centre). A prepared substrate is at the right.

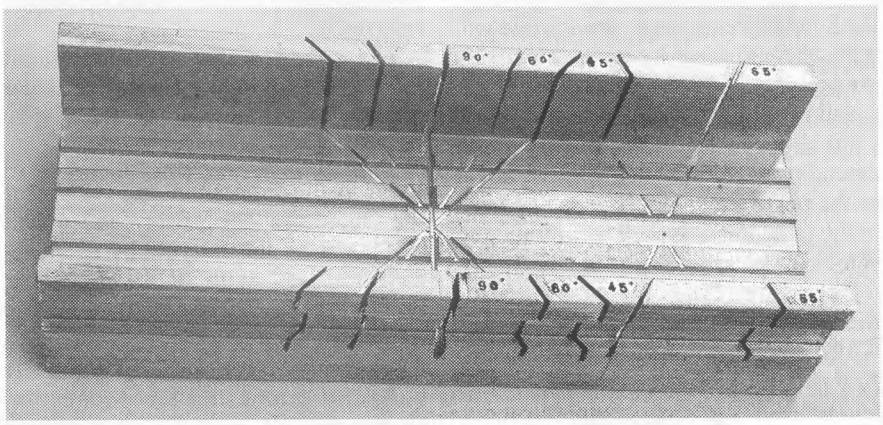

Photo 2: Modellers' mitre box with additional 60° and 65° slits.

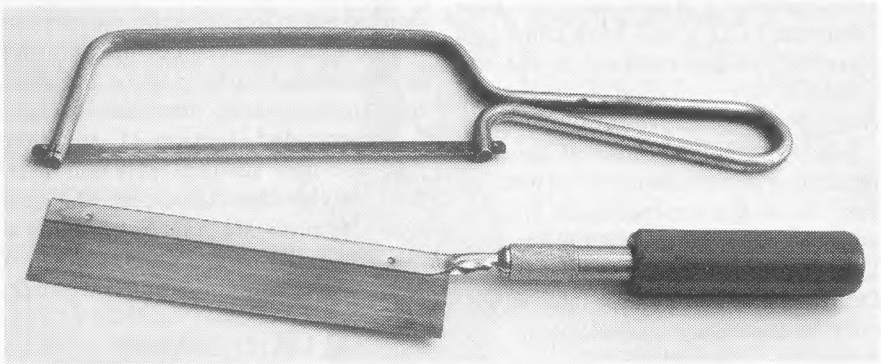

Photo 3: 'Junior' hack-saw (top) and modellers' back-saw.

Tools

Mitre-box, back-saw and "junior" (Eclipse 14J) hack-saw should be available from your local model shop.

References and Further Reading

1. "'Paddyboard' circuit construction – Revised"; *Amateur Radio*, May 2005.
2. "Surface Mount Technology"; Sam Ulbing N4UAU, *QST*, April - May 1993.
3. "Homebrewing - Surface Mount Style"; Ed Kessler AA3SJ, *QST*, Feb 2004.
4. *Radio Communication Handbook;* RSGB, 8th edition. Ch 26.

Photos: Karlen Dockrey.

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The changes to the amateur LCD

Michael Owen VK3KI

In August 2003 the ACA published a discussion paper *A review of Amateur Service Regulation*. **It took into account the changes made to the international Radio Regulations affecting the amateur services by the World Radiocommunication Conference in 2003, including the removal of Morse code as a treaty requirement for operation below 30 MHz. The ACA undertook extensive consultation with amateurs at meetings in 10 cities across Australia and received over 1,300 submissions as part of its review.**

In January 2004, the requirement for a Morse code qualification to operate below 30 MHz in Australia was removed.

The results of the ACA review were published in May 2004, as the *Outcomes of the Review of Amateur Service Regulation* (the "Outcomes").

Then, in October 2005, the entry-level licence foreshadowed in the Outcomes, the Foundation licence, was introduced, with the existing licence categories consolidated into two categories, the Standard and Advanced.

Finally, the Authority has made an amending Determination to give effect to the remaining matters foreshadowed in the Outcomes, as well as introducing some new conditions.

The amending Determination, the Radiocommunications Licence Conditions (Amateur Licence) Amendment Determination 2008 (No. 1) that amends the Radiocommunications Licence Conditions (Amateur Licence) Determination No. 1 of 1997 (the "Amateur LCD"), will have come into force on the first moment of the day following its registration on the Federal Register of Legislative Instruments.

While the ACMA site will have the Amending Determination on its website, very soon the amendments will be consolidated into the single Amateur LCD by the Office of Legislative Drafting and Publication and it will only be necessary to look at the one document.

The changes

Formal Changes

A number of the amendments are formal, removing the references to the old licence categories of Intermediate, Limited, Novice and Unrestricted, previously left in the Amateur LCD to allow the transition to the new categories. Further changes substitute ACMA for ACA. Other amendments do not change meaning but reflect current drafting conventions, for example, to no longer refer to the provision in the Radiocommunications Act giving the power to make the particular condition.

These amendments, while extensive and affecting headings as well as many provisions, are formal and are not further referred to.

The changes that are significant include the following (in no particular order):

Using the Internet

Even in the time since the release of the Outcomes, the variety and extent of the use of the Internet by amateurs has increased, with IRLP, EchoLink, D-STAR and even the control of remote transceivers.

Previously, section 11 of the LCD basically prohibited the connection of automated systems to a public telecommunications network. As is pointed out in footnotes, for the purpose of the amateur service, the Internet is considered to be part of a public telecommunications network.

As amended, section 11, together with the new sections 11A and 11B, now provide that Advanced, Standard and Repeater stations may operate automatically when connected to a public telecommunications network, including the Internet.

Section 11A (2) provides:

(2) The licensee must not, directly or indirectly, connect the station to a public telecommunications network, unless the licensee has implemented reasonable measures to ensure that only appropriately licensed persons access the station to transmit a signal to another amateur station.

The provision recognises the reality that the licensee cannot guarantee that only appropriately licensed persons access the station to operate a transmitter, and so this provision requires the implementation of reasonable measures to achieve that without imposing an absolute liability.

What are reasonable measures? Obviously that will depend on the circumstances of each case. If it is intended that a transceiver can be operated by amateurs generally through the Internet, measures to ensure that the person seeking to operate the station is licensed, such as verification of identity and of licence before the person can do so, and before appropriate password access is granted, as is done with EchoLink, would seem reasonable measures.

It may be that the new provision reflects what is already done.

Sub-section (3) defines the term "appropriately licensed person" as a person "holding a licence that authorises that person to operate a station using the frequency and emission mode of the station being accessed."

A warning required

Not foreshadowed in the Outcomes is a provision applying to Standard and Advanced stations (not Repeater stations), section 11B.

The operative provision of section 11B is:

(2) If a licensee connects a person from a public telecommunications network to the station, whether manually or automatically, the licensee must:

(a) advise the person being connected that his or her transmissions may be overheard by other persons; and

(b) advise the person being connected to disconnect if he or she does not wish to proceed with the connection.

The note to the section explains why that provision is there. Section 7 (1) of the Telecommunications (Interception and Access) Act 1979 creates an offence to intercept a communication passing over a telecommunications system. By section 6 (1) of that Act *interception of a communication passing over a telecommunications system consists of listening to ... such a communication in its passage over that telecommunications system without the knowledge of the person making the communication.* By the further definitions of the Act, "telecommunications system" includes the communication transmitted by the amateur station, as the communication is not carried solely by radiocommunication. The offence is "listening", without either disclosing or acting on what is listened to, so long as the person making the communication does not know that he or she can be heard.

The obligation is imposed on a licensee who connects a person (not necessarily a licensed person) from a public telecommunications network, which could be a "phone patch" or a connection over the Internet. If the obligation had been imposed on a Repeater station, then a D-STAR gateway station could be regularly "connecting a person from a public telecommunications network" to the station, and the obligation would be unrealistic. And a Foundation station cannot make such a connection.

While it can safely be assumed that a licensed person would be fully aware of the fact that any amateur transmission can be listened to by others, the requirement is not restricted to a licensed person, as referred to in section 11A (2).

The point is that it really does make sense for an amateur allowing a non-amateur to communicate through an amateur transmitter to ensure that the non-amateur does understand that whatever is said may be lawfully listened to by other people.

International third party messages

The Amending Determination revokes Section 5 (4) of the LCD.

That provision required a bilateral agreement between Australia and the foreign country before third party messages could be exchanged between amateurs of the countries. WRC 03 removed that requirement from the ITU's Radio Regulations, leaving it for each administration to decide what messages its amateurs could exchange.

The section revoked provided:

(4) A licensee must not transmit messages to an amateur station in a foreign country, on behalf of a third party, unless the government of that country has made a special arrangement with Australia for the transmission and reception of messages, on behalf of third parties, between amateur stations in Australia and amateur stations in that country.

Now a note to section 5 of the LCD makes it clear that while an Australian amateur station may transmit a message on behalf of a third party to an amateur station in another country, the amateur in the other country will be bound by that country's regulations, and may not (except in the case of emergencies or

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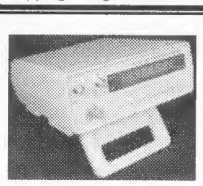

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disaster relief) be permitted to exchange such messages.

This change may prove to be very important in emergency communications, and practices for such communications.

The change gives full effect to the intent of the change made in 2003 to Article 25 of the Radio Regulations.

Encoded transmissions

To now, section 8 (3)(a) of the Amateur LCD required "a carrier wave" emitted from an amateur station to be subject to "intelligible modulation", that is transmissions encoded for the purpose of obscuring meaning were not permitted.

To give effect to the changes made to Article 25 of the ITU Radio Regulations at WRC 03 and to give effect to the policy considerations identified in the Outcomes, section 8 (3) is now qualified to be subject to a new subsection 8 (3A), which provides:

(3A) The licensee must not operate an amateur station to transmit signals that are encoded for the purpose of obscuring the meaning of the signals, except for:

(a) signals exchanged between an amateur station and a space station in the amateur satellite service for the purpose of controlling the operation of the space station; and

(b) signals exchanged between an amateur station and an unattended amateur station for the purpose of controlling the operation of the unattended amateur station; and

(c) intercommunications when participating in emergency services operations or related training exercises.

The phrase "encoded for the purpose of obscuring the meaning" is important. Many signals are encoded, but the code is in the public domain. The section uses the phrase used in the ITU Radio Regulations, and looks at purpose to determine whether the encoding is subject to the section.

While section 3A (a) reflects an exception accepted at WRC 03, and section 3A (b), allowing encoded control signals of an unattended amateur station seem obvious, section 3A (c) is important in recognising the reality of emergency communications.

Special call signs

Because the call sign is a licence condition set out on each amateur licence, there was no legal basis on which the call sign could be altered for special events unless the licensee was issued with a new licence for the relevant period the special event call sign was to be used. The Amending Determination now provides a basis for the "AX" call sign to be used for special occasions.

The Amending Determination amends the LCD by making the existing provision, section 2 (2) that provides *However, if a condition in this Determination is inconsistent with a condition specified in the licence, the condition specified in the licence applies* now subject to the new section 8 (1A), which is as follows:

(1A) The licensee of an amateur station (other than an amateur beacon station or amateur repeater station) may, on the following days, substitute the prefix letters VK in the call sign printed on the licensee's amateur licence with the prefix letters AX:

(a) 26 January;

(b) 25 April;

(c) 17 May.

The Note to the subsection points out that 26 January is Australia Day, 25 April is Anzac Day and 17 May is World Telecommunication Day.

What is unclear is how another event can be celebrated, for example, the use of special call signs for at least a period during 2010 to mark the centenary of the WIA as the oldest national radio society in the world.

"Operate"

The existing section 9 (1) of the Amateur LCD provides that *The licensee must ensure that an amateur station is operated at all times by, or under the supervision of, a qualified operator*, unless the station is a repeater, beacon or using an automatic or computer controlled mode.

The words in section 9 (1) "or under the supervision of" are deleted, so that the station must be "operated" by a qualified operator, or, now, a "qualified person" "in attendance at the amateur station", subject to the exceptions.

A new exception is added to this list of exceptions – "an amateur station at a remote location."

So, and importantly, section 9 (1) becomes:

9 Control of equipment at an amateur station

(1) The licensee must ensure that an amateur station is operated at all times by a qualified operator or qualified person in attendance at the amateur station, unless the station is:

(a) an amateur repeater station; or

(b) an amateur beacon station; or

(c) an amateur station using automatic mode (including, for example, packet mode and radioteletype mode);

(d) an amateur station using computer controlled mode (including, for example, packet mode and radioteletype mode); or

(e) an amateur station at a remote location.

A "qualified operator" is essentially a person holding the appropriate Australian certificate of proficiency, but the new "qualified person" is, by a new definition, " ... a person who holds an overseas qualification equivalent to the certificate of proficiency for a qualified operator."

The other changes to this provision must be looked at in the context of the new definition of the word "operate".

The definition of "operate" now makes the circumstances in which a person other than a "qualified operator" or "qualified person" may "operate" an amateur station.

The word "operate" is used throughout the Radiocommunications Act, for example the primary offence by section 46 is to "operate a radiocommunications device" without a licence. The word is not defined, and must be given its ordinary and natural meaning.

Certainly, to cause a transmitter to transmit or to cease to transmit must be to "operate" the transmitter.

Then, if through an Internet connection, an amateur in another country causes an IRLP node station in Australia to transmit, or through a D-STAR gateway station causes the D-STAR gateway repeater in Australia to transmit, who is "operating" the Australian transmitter?

And, certainly, Australian amateurs do want to be able to allow others to "speak" on their station, or to train potential amateurs on their station.

All of this is now addressed in the definition of "operate", and various other changes.

That definition starts with the general and then defines those particular actions that are excluded, and does so in relation to specified stations, either Standard or Advanced stations or Repeater stations.

The definition must be read carefully and is as follows:

In this Determination:

operate means take an action to control the operation of the amateur transmitter, other than:

(a) in relation to an amateur standard station or an amateur advanced station — an action taken by a person who is not a qualified operator or a qualified person, that is done in the presence of and under the supervision of a qualified operator or qualified person, to activate by switch or voice a microphone connected to a transmitter, when the operation of the transmitter:

(i) is limited to causing the transmitter to transmit or to cease to transmit; and

(ii) is otherwise controlled by the qualified operator or qualified person; or

(b) in relation to an amateur standard station or an amateur advanced station — an action taken by a person who is not a qualified operator or a qualified person, that is done in the presence of and under the supervision of a qualified operator or qualified person, to control the operation of a transmitter while being trained or examined for the purpose of becoming a qualified operator; or

(c) in relation to an amateur standard station or an amateur advanced station — an action taken by a person who is not a qualified operator or a qualified person, to activate by switch or voice a microphone connected to a transmitter through a public communications network if:

(i) the action is limited to causing the transmitter to transmit or to cease to transmit; and

(ii) the operation of the transmitter is otherwise controlled by a qualified operator or qualified person present at the transmitter; or

(d) in relation to an amateur standard station or an amateur advanced station, for a station which receives radio signals from a second amateur station and automatically retransmits those signals by radio — an action taken by the operator of the second amateur station if that action causes the retransmitting station's transmitter to only transmit or to cease to transmit; or

(e) in relation to an amateur standard station or an amateur advanced station, for a station which receives signals through a public telecommunications network from a second amateur station and automatically retransmits those signals by radio — an action taken by the operator of the second amateur station if that

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action causes the retransmitting station's transmitter to only transmit or to cease to transmit; or

(f) in relation to an amateur repeater station:

(i) which receives radio signals from a second amateur station and automatically retransmits those signals; or

(ii) which is connected to a public telecommunications network which receives signals from a second amateur station and automatically retransmits those signals;

an action by the operator of the second amateur station that causes the first station's transmitter to only transmit or to cease to transmit.

The effect of these amendments and the new definition is to allow a person who is not "qualified" to "talk over" a Standard or Advanced amateur station, and allows the training and assessment of potential amateurs using Standard or Advanced stations, and the "operation" of the Australian station by another Standard or Advanced station by an Internet connection.

Foundation licensees cannot operate (that is, 'control' as opposed to 'use') a repeater station.

As is pointed out in the formal Explanatory Memorandum in respect of the Amending Determination:

"... the definition of operate clarifies the responsibilities of amateurs 'operating' through another, unmanned amateur station (usually an amateur repeater station). Amateur repeater stations receive radio signals from a second amateur station (or a station connected to a public telecommunications network which receives signals from a second amateur station) and automatically retransmit these signals. The definition of operate explicitly excludes an action by the operator of the second amateur station that causes the first station's transmitter to only transmit or to cease to transmit. For all other actions, responsibility for the operation of the repeater station is placed on the amateur operating the second amateur station."

In this context, new section 27A (1) makes it explicit that:

> The licensee of an amateur licence (amateur foundation station) must not authorise another person to operate the licensee's amateur station if the other person is not a qualified operator or qualified person.

The section uses the word "operate" which means operate as defined. It should be noted that the acts excluded from the general definition of the term do not apply to Foundation stations.

In the "conditions" for an Advanced station a new section 12A provides:

> The licensee of an amateur advanced station must not authorise another person to operate the station if the other person is not a qualified operator or qualified person.

An identical provision (section 22A) is inserted into the conditions for a Standard station.

But, again, the conditions use the word "operate" as defined, which excludes from the general definition defined acts and these are applicable to Standard and Advanced stations.

Other changes affecting Foundation stations

At long last, the LCD will limit the output power of a Foundation station to 10 watts in all permitted modes.

However, other restrictions are now made clear. In addition to section 27A (1) quoted in the context of "operate", sections 27A (2) and (3) provide:

(2) The licensee of an amateur licence (amateur foundation station) must not operate an amateur station using automatic mode or computer controlled mode.

(3) The licensee of an amateur licence (amateur foundation station) must not operate an amateur station that is directly connected to a public telecommunications network.

The note to this section does make it clear that a Foundation station may be indirectly connected to a public telecommunications network through a gateway operated by another licensee.

Emergency communications

A number of amendments relate to (and better facilitate) emergency communications.

Section 5 (1) of the Amateur LCD is amended by deleting the word "natural" before the word "disaster" in the provision:

> The licensee must not solicit a message that is to be transmitted on behalf of a third party unless the message relates to a disaster.

A new section 8 (2A) applies to stations "participating in emergency services operations or related training exercises" and provides:

> *If a network of amateur operators is participating in emergency services operations or related training exercises, for transmissions relating to those operations or exercises, the licensee must ensure that arrangements are in place for at least 1 station in the network to transmit the call signs of the stations participating in the network:*
>
> *(a) at the beginning and end of a transmission or series of transmissions; and*
>
> *(b) for a transmission or series of transmissions that lasts for more than 30 minutes — at least once during each period of 30 minutes; and*
>
> *(c) by voice (using the English language), by visual image or by an internationally recognised code.*

The term "emergency services" is defined in section 3 (1) to mean:

> *... services provided by an organisation established in a State or Territory for purposes that include the provision of services during an emergency.*

The existing rules as to the use of call signs, effectively requiring every station to identify every other station and giving its own call sign every 10 minutes, in sections 8 (1) and (2) of the Amateur LCD are made subject to the new subsection 8 (2A).

New rules relating to the use of repeater stations

A new section 8A is inserted into the Amateur LCD by the Amending Determination.

While the concept may not be perceived as new, the effect of the new section is to impose a legal obligation on the licensee to ensure that he or she only

operates through a repeater where the repeater's output frequency is allowed under that person's own licence. The new section is:

(1) The licensee must not operate an amateur station to transmit a signal to another amateur station, through an amateur repeater station, if the licensee is not authorised under the licence to transmit on the repeater output of the amateur repeater station.

(2) The licensee must not operate an amateur station to transmit a signal to another amateur station, through an amateur repeater station linked to a second amateur repeater station, if the licensee is not authorised under the licence to use the repeater output of the second repeater station.

(3) The licensee must not operate an amateur station to transmit a signal to a second amateur station through a third amateur station if the licensee is not authorised under the licence to transmit on the third amateur station's transmit frequency.

The note to the new section 8A is important, and states that a licensee may transmit a signal over a repeater link, whether or not the licensee is authorised to transmit on the repeater link frequencies.

Spurious emissions

A new provision "Spurious emissions limits for an amateur station" is included in the Amateur LCD. In the Outcomes the ACA said "The ACA will continue to impose limits on the purity and stability of emitted frequencies, and maximum power limits on amateur stations in accordance with the ITU's requirements for transmitting stations, including amateur stations. The ITU requirements ... will be included in the remade Amateur Determination."

The new provision is as follows:

7. (1) The licensee must not operate an amateur station if the emissions of the station include spurious emissions that are not attenuated below the power of the wanted emission supplied to the antenna transmission line by:

(a) for frequencies less than 30 MHz — the lesser of:

(i) 43 + 10 log (PEP) dB; and

(ii) 50 dB; or

(b) for frequencies above 30 MHz — the lesser of

(i) 43 + 10 log (P) dB; and

(ii) 70 dB.

(2) In subsection (1):

P means mean power in watts supplied to the antenna transmission line.

PEP means peak envelope power in watts supplied to the antenna transmission line.

These limits are the limits for the amateur service in Appendix 3 of the Radio Regulations.

Some older commercial equipment may not comply with these requirements.

Interference

Section 7 of the Amateur LCD is amended so that it now reads:

The licensee must not operate an amateur station if its operation causes harmful interference to radiocommunications.

Previously, rather than the word "radiocommunications", the phrase used was "a service provided by another station".

"Radiocommunications" is defined in section 6 the Radiocommunications Act widely as follows:

(1) For the purposes of this Act, radiocommunication is:

(a) radio emission; or

(b) reception of radio emission;

for the purpose of communicating information between persons and persons, persons and things or things and things.

(2) The reference in subsection (1) to communicating information includes communicating information between a part of a thing and:

(a) another part of the same thing; or

(b) the same part of that thing;

(as, for example, in the operation of a radar device).

It is considered that the change encompasses some situations that may not have been covered by the previous language and is now consistent with the definition of "harmful interference" in the Australian Radiofrequency Spectrum Plan, which defines "harmful interference" as something which occurs to a radiocommunications service, not "a service provided by another station."

Conclusion

Not every change to the Amateur LCD is described in this article, and all licensees are urged to carefully read the Amending Determination to check for changes that might affect their operation, for example, operation on 50.0 to 50.3 MHz may be affected by the six additional translator stations that have an input on VHF channel 0.

The changes are the last of the changes resulting from the ACA review of the amateur service. Not all the changes originally proposed have been given effect to, with the ACMA retreating some time ago from the power limits identified in the Outcomes.

In their totality, the removal of the Morse code requirement for operation below 30 MHz, changes to the licensing structure, in particular the introduction of an entry-level licence, and now these changes represent a significant up-dating of the structure and regulation of the amateur service in Australia.

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A cheap 15 amp switch-mode power supply for 13.8 V

Robert Broomhead VK3KRB

Altronics has a 13.8 volt 15 amp switch-mode power supply (the M8260) which has been seen on sale for the bargain price of $99 (normal catalogue price of $149 in one-off quantities). After having purchased one, I did the usual checks to see how suitable it would be for use with my radios. It turns out it was designed for use with standard size VHF and UHF radios and comes with a set of brackets to join the radio to the power supply.

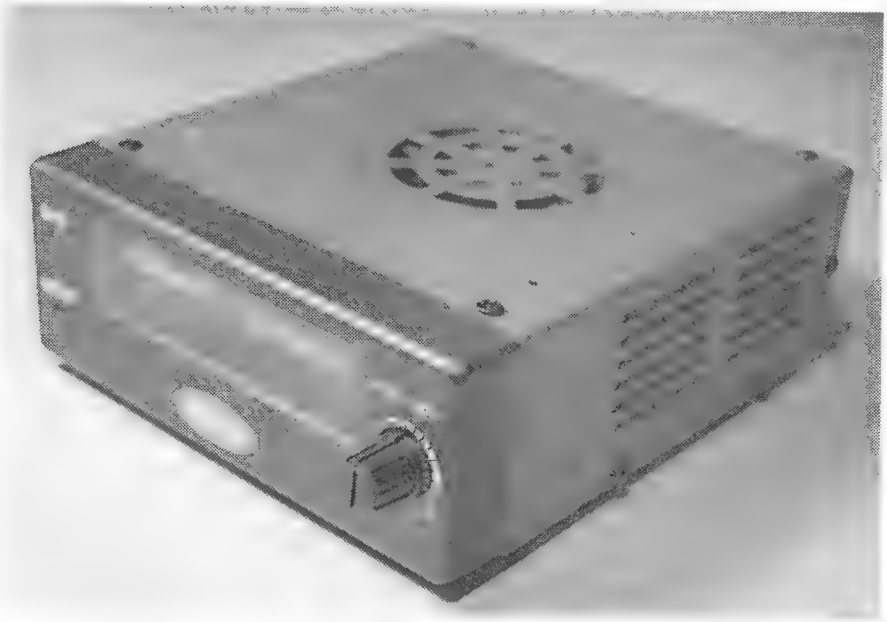

Photo 1: (right) Front view of the switch mode power supply

Photo 2: Rear view of the switch mode power supply

Drew Diamond had also purchased one of these units and has done some tests looking for RF emissions that may interfere with HF reception. If I recall correctly, he said at the meeting of the local club that he found a few birdies on his HF radio but that they should not be a problem for most operators.

What concerned me about my new power supply was the noise produced by the cooling fan, it was a powerful cooling fan and quite noisy. It has two modes of operation; it could be switched on full time or it could be operated by a thermistor in which case it would switch on for 5 or 10 seconds every minute as is needed when the supply becomes warm. I found these intermittent bursts of noise to be even more annoying than having the fan running all the time.

So I performed a simple modification and put an 82 ohm 1 watt resistor across the red fan control switch (the one that controls the fan, NOT to be confused with the black mains switch). The result is that the fan now gently purrs away and keeps the supply cool. I have carried out some tests with the supply under 15 amp load for five minutes and the thermostat did not need to switch in to run the fan into high speed mode. A very satisfactory result!!

Caution PLEASE NOTE:

1) This (and any other) modification will void your Altronics warranty.
2) This is a mains operated device, never ever remove the covers with mains power connected, or operate the unit with the covers removed.
3) If you are not 100% confident with undertaking this modification, then please do not even attempt it, get some assistance from someone who is experienced.

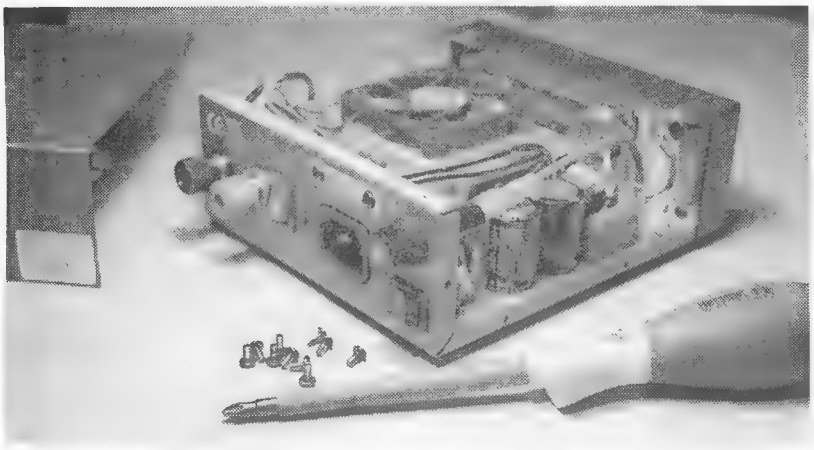

Photo 3: The unit with its top cover removed

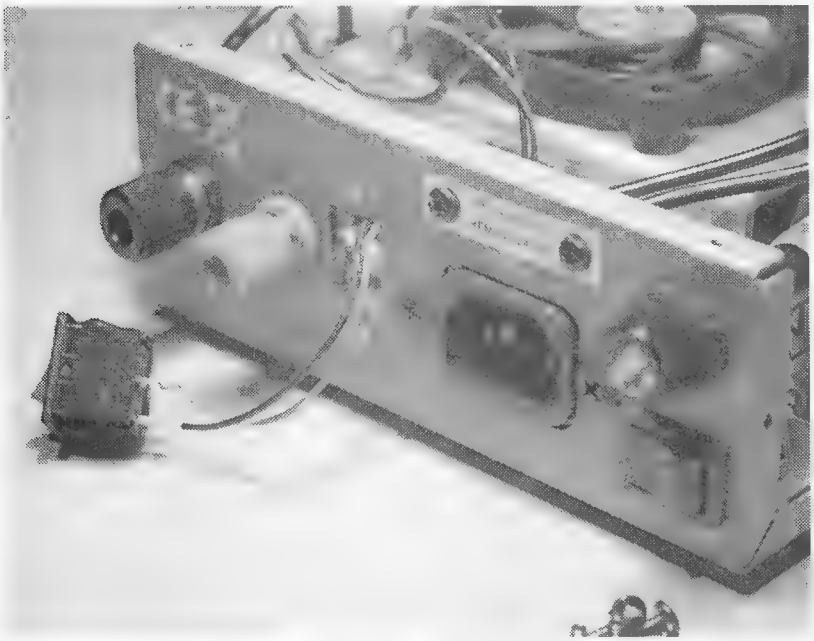

Photo 4: The power switch carefully removed

Photo 5: The 82 ohm resistor added across the fan control switch (see text)

Photos by the author.

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Quieting a switch-mode power supply

Drew Diamond VK3XU

A number of radio and electronics suppliers offer a neat little generic low-priced, switch-mode power supply unit (SMPSU), whose output is nominally 13.8 V at up to 10 or 15 A. SMPSUs (SMs) are smaller, lighter, cheaper, cooler and more efficient than conventional transformer type supplies. Unfortunately, they also have a reputation for producing radio noise.

A switch-mode PSU is essentially a 20 - 200 kHz square-wave power oscillator which, if not adequately filtered, incidentally injects rich harmonic energy back into the mains supply, and/or into the load. The H-field (leaked magnetic flux) surrounding the PSU may also directly affect nearby receiving equipment. A technical writer once quipped that SMs were invented by an accountant (another called them "an invention of the Devil").

My sample model has a minimal amount of filtering on the mains (or line) side, and in the positive output lead only of the PSU, perhaps sufficient to allow an ordinary broadcast receiver in the same house to hear Radio National. But we amateurs routinely listen for signals right down in the microvolt region, which makes SMs a less than ideal device for powering radio equipment in small-signal work.

Another rather unfortunate characteristic of some SMs is their behaviour when the current limit is reached - they shut down completely. The user must wait some seconds before re-applying primary power. An internal fan is included which operates automatically to cool the internal power devices. So, acoustic fan noise is another issue.

Notwithstanding these shortcomings, it is possible to greatly reduce the amount of conducted radio noise by fitting additional filtering in the mains input side, and in the positive and negative DC output leads.

Mains input filter

There are usually two components contained in the noise emanating from the mains power connector. They are 'normal-mode' (i.e. a noise voltage occurring between the active and neutral conductors), and 'common-mode' (noise voltage of about equal phase and amplitude on both conductors with respect to earth ground). Fortunately, the job of reducing both kinds of noise may be tackled in this instance by simply adding a ready-made mains or 'EMC' filter.

The series inductive element universally used within EMC filters is a clever device called a 'current compensated inductor' (Reference 1, Chapter 9, and Reference 2, page 28.11), in which a ferrite toroidal core has two identical contra-wound coils, so the net magnetic flux created in the core by the line (or load) current will be very small. It is thus possible to use a core without an air gap, yet maintain a high impedance to noise currents without saturation effects due to the line (or load) current.

The EMC filter may be accommodated in a plastic 'jiffy' box measuring 130 x 67 x 44 mm, pictured in Photo 1. A useful amount of additional common-mode rejection may be had by winding the active (line) and neutral wires upon an LO1238 toroidal core as follows:

Remove the outer sheath from about 600 mm of an ordinary IEC power cord (discarding the usual 3-pin mains plug). The job is eased by removing only small sections of perhaps 100 mm of the sheath at a time. Wind the brown (Line) and blue (Neutral) wires side by side together upon the toroidal core, about 10 loops, which are connected to the (L)ine and (N)eutral tags of the EMC filter. The earth (green-yellow) wire, cut to an appropriate length, by-passes the toroid and connects directly to the centre earth pin of the filter. Remember to either tie a knot in the cord, or attach a plastic cable-tie to prevent the cord from being pulled out. The toroidal core may be fixed to the bottom of the box with a blob of hot-melt glue (silicone would also serve).

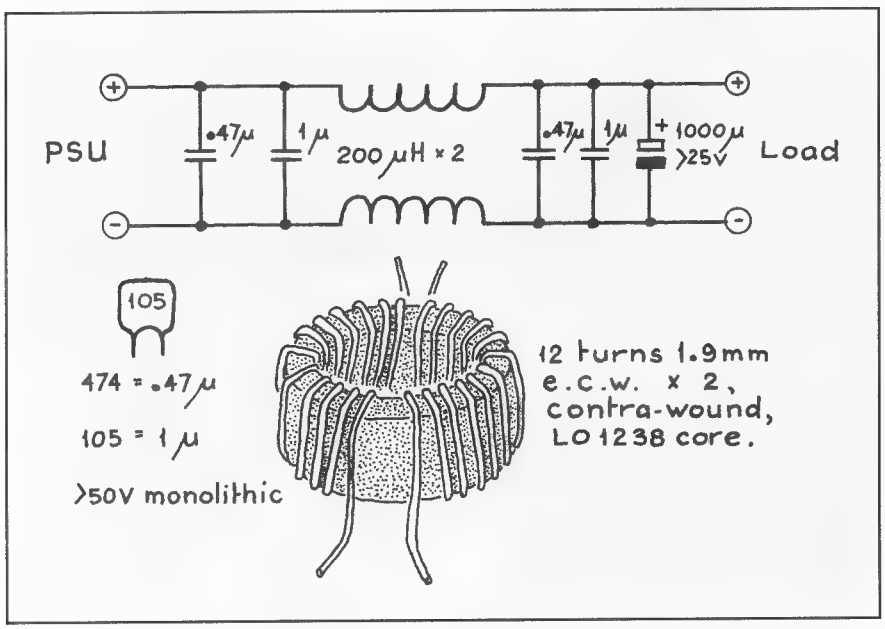


Fig 1 – Circuit diagram of the DC output circuit

DC output filter

Residual harmonic energy upon the DC side may be substantially removed by passing both the positive and negative output leads through a compensated series inductor, which acts in the same manner as described above for the line filter's inductor. The 200 μH coils (Figure 1) are wound upon an LO1238 toroidal ferrite core in opposite directions, so there is no net magnetic flux due to direct current flowing through the coils. Core saturation, or reduced effective inductance, is thus avoided.

The circuit is shown in Figure 1. The 0.47 μF and 1.0 μF capacitors should be low-inductance monolithic types, 50 V working. These, and the toroidal coil, may be accommodated upon a 40 mm x 70 mm rectangle of double-sided circuit board, pictured in Photo 2. The 'lands' may be formed by equally dividing the rectangle top and bottom with a hack-saw cut, down and across.

Measure the exact spacing of your SMPSU's terminals and drill holes in the board accordingly. A similar pair of holes at the opposite end is made to take binding-post terminals to suit your equipment set-up (19 mm [0.75"] spacing is suggested, as this fits ready-made twin-banana type plugs).

It is vital that upper and lower lands be connected together. Drill a 1.5 mm hole in four places (avoiding terminals) so that #16 B & S tinned Cu wire (Cu is the shorthand chemical symbol for copper) may be passed through and soldered each side.

For the coil(s), wind on 12 turns of 1.9 mm enamelled Cu wire for each leg of the coil. Note that they must wind in opposite directions, as depicted in Figure 1.

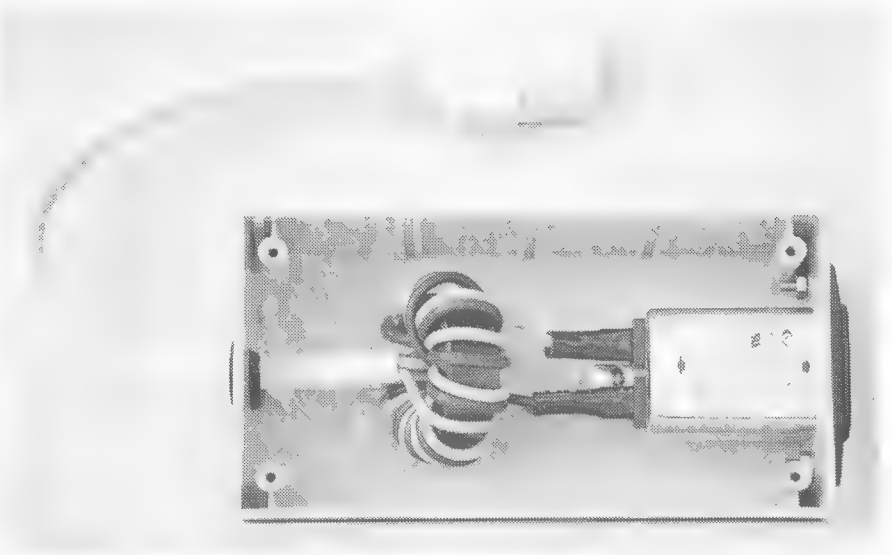


Photo 1 – Additional mains filter, inside view.

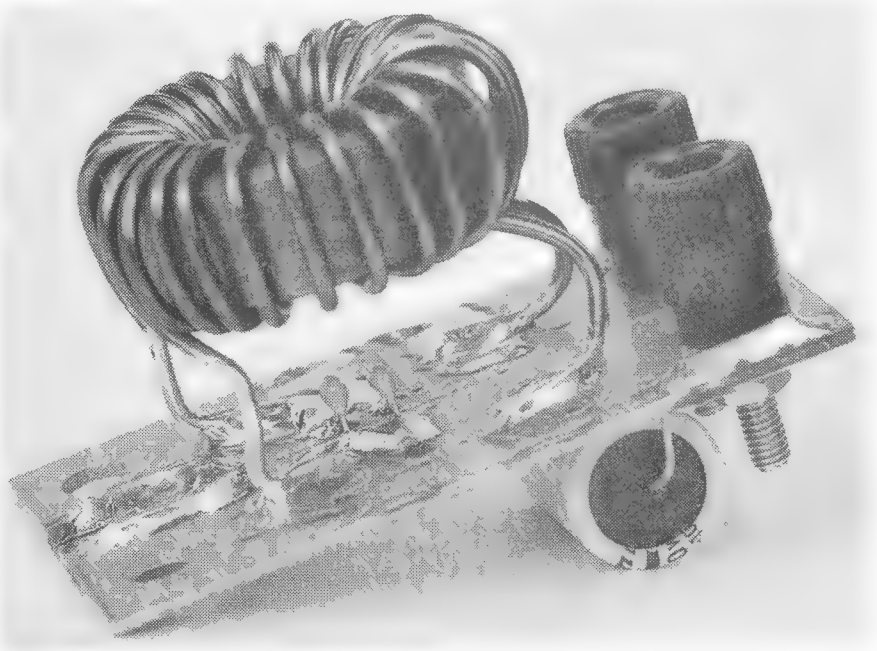


Photo 2 – DC filter

Reduced fan noise

For the sample model, when current demand is above about 5 A, the fan will automatically cut in, and thus cycle on and off according to demand. If this irritates you (and the idea of voiding the warranty is not a problem), the following modification is suggested by Robert Broomhead, VK3KRB (see the separate article in this issue, on page 12).

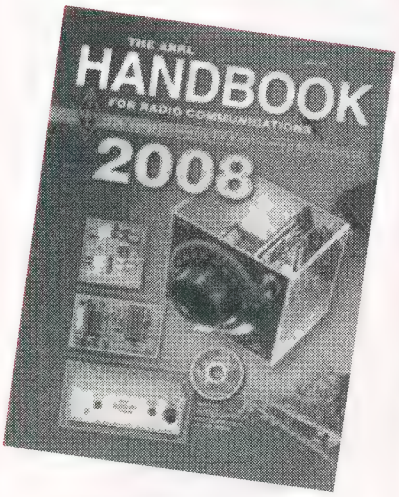
Locate the 45 degree C thermal cut-out switch, which is mounted upon the heatsink immediately next to the fan. Carefully solder an 82 or 100 ohm 1 W resistor across the tags of the cut-out, taking care that sufficient clearance exists between the resistor and the heatsink, and also the cover (when replaced).

With this addition, only 6 V is applied continuously to the fan motor, and so it quietly ticks over, making much less noise, whilst very adequately cooling the power devices such that the thermal switch only needs to cut in and apply full voltage to the motor during heavy demand periods.

Before and after

It is suggested that your transceiver (or other equipment) be first operated from the PSU without additional filtering fitted. Carefully note the strength of any rough, wobbly noise signals created by the PSU. When the mains and DC filters are installed (Photo 3), it should be found that these are considerably reduced in strength, or eliminated, particularly if your HF antenna has a matched coax, or truly balanced feed-line.

Amateur Radio Bookshop



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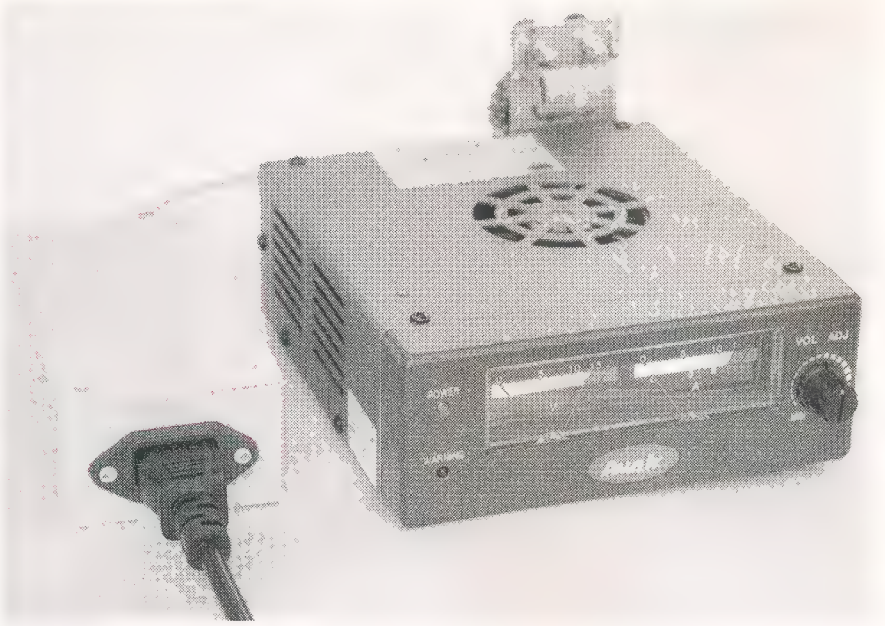

Photo 3 – Mains and DC filters installed.

Conclusion

Although SMPSUs are not ideal (in this writer's opinion) for use in a small-signal radio environment, it is highly likely that their attractive price and small size will cause many amateurs to use them to power transceivers and other equipment designed to operate from a nominal 13.8 V DC supply.

Tests upon a typical PSU indicate that noise conducted from the mains and DC side may be simply and cheaply reduced to an acceptable level, thus allowing small-signal work to occur.

Parts

It happens that most of the components for the prototype filters were purchased from my local Jaycar shop, including jiffy box, HB6023; EMC filter, MS4003; toroidal cores (packet of 2), LO1238; and capacitors. Similar suitable parts are also available from our other suppliers, including Altronics, DSE and Semtronics.

References and Further Reading

1. *Switched-mode Power Supplies In Practice*; O Kilgenstein. John Wiley & Sons.
2. *Radio Communication Handbook*; 8th edition, RSGB.

Photos: Karlen Dockrey

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John Moyle Memorial Field Day

15 & 16 March

Spotlight on SWLing

Robin Harwood VK7RH

SW in a maelstrom of hate

2008 is really flying by and so much has been happening. Conditions are slowly improving yet it is obvious that the usage of HF is very much on the decline, especially by the broadcasting sector. Radio Sweden has decided to discontinue German language broadcasts after many decades and the future of other languages is uncertain. It may be following other Scandinavian nations in abandoning shortwave altogether.

For many years, Radio Station Tikihy Okean was aimed primarily at the huge Russian Pacific fishing fleet. It was based in Vladivostok. This station disappeared at the end of January and so did its website. A similar station used to be based at Murmansk: Radio Atlantika, serving that vast oceanic region. I guess that it was no longer commercially viable with the decline in fishing fleets.

The A-08 season will commence at 0100 Z on the 31st of March, coinciding with the introduction of summer time in most of Europe and into Asiatic Russia. This period lasts until the last Sunday of October. Australasia usually goes off Summer time on the same date but this will no longer be the norm. We actually put our clocks back on the first Sunday in April and we resume DST on the first Sunday in October. This will be three weeks earlier for NSW, Victoria, SA and WA and we will now have a uniform changeover date. NZ has opted for the last weekend in September, which means they will have an extra week of daylight saving.

Africa continues to dominate the news with an escalation in inter-ethnic strife, leading to civil wars. Kenya plunged into this abyss in late December, following the presidential election. These conflicts seem to have had their genesis in the troubles in Rwanda and Burundi in 1994, yet these troubles may have deeper roots. We have been horrified at the senseless slaughter of innocent people, caught up in this maelstrom of hate.

People have been increasingly relying on shortwave radio stations because the local media has been silent on what has happened, either due to censorship or the senders being destroyed in the conflict.

Hate stations have been heard stirring up inter-ethnic conflict, particularly in Kenya, contrasting to the mainstream media. Efforts to find a political solution seem to have stalled and the African refugee crisis has worsened.

Civil war has also broken out in Chad, which borders Sudan. This seems to have its roots in the ongoing Civil war in the Darfur region of that large nation. Chad was easily heard here in Australia on 4905 but studios in N'djamena, the capital, were destroyed in the fighting and the channel has been silent since.

People have been increasingly relying on shortwave radio stations because the local media has been silent, either due to censorship or the senders being destroyed.

Hate stations have been heard stirring up inter-ethnic conflict,

Africa will still rely on shortwave for some time because the communications infrastructure is so poor. The Internet is virtually non-existent in sub-Saharan Africa and people rely heavily on news from Radio France International (RFI), the BBC World Service, or Channel Africa, formerly Radio RSA. The VOA has built senders in Botswana and on the former Portuguese island of Sao Tome. However Africans prefer listening to stations which concentrate on local issues rather than on those further afield.

Well that is all for March. Do not forget you can send me your news and views to vk7rh@wia.org.au Alternatively via snail mail to 20/177 Penquite Road, Norwood, Tasmania 7250.

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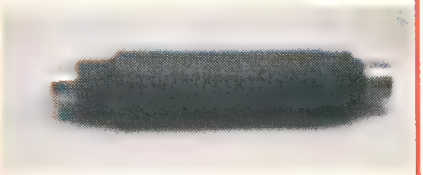
TVI High Pass Filter with Braid Breaker



An inline TVI filter with Braid Breaker.

A large amount of TVI can travel down the outer braid of Coax as well as the centre conductor. The braid breaker isolates the centre conductor and braid from the TV/VCR/DVD. The High Pass filter cuts in at 50MHz. This filter has 80 dB attenuation at 40, 80 and 160 metres.

Pager Notch Filter:

A receive filter that can be used in an outdoor housing (Pictured) to be mounted close to your antenna on the mast, or can be used in a diecast box for indoor use near your transceiver or receiver. The filter is set to 148.5 MHz but may be tuned by the user across the 148 to 149 MHz Pager band. A selection of connectors are available including BNC and N Type. Where transmit is required this filter can be switched out of circuit by the use of coaxial relays linked to the PTT switch.

Contact us if you need a special filter, we manufacture here in Australia rather than overseas.

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How to use taps to make internal screw-threads

Drew Diamond VK3XU.

There are numerous applications in radio and electronics construction work where is it necessary to make tapped holes in brass, aluminium and steel. The most common contemporary metric screw sizes in our craft are probably 3, 4 and occasionally 5 mm.

In engineering trades, it is usual to have sets of three kinds of tap for each size. These are tapered, intermediate and bottoming (or 'plug'). However, in our work, unless we are threading 'blind' holes, we can generally make do with just a tapered tap for each required size. A 3 x 0.5 mm and a 4 x 0.7 mm tapered tap are shown in Photo 1. The second number refers to the thread pitch - or distance between crests.

To make a threaded hole, the job is first drilled to 'tap' diameter in the exact spot required – see Table 1 (derived from Reference 1). It is good practice to follow with an exact screw diameter (e.g. 3 mm) drill as a 'counterbore', to a depth of only two or three threads. Figure 1 illustrates how the 'counterbore' aids in ensuring that the tap starts truly in the hole.

Our tap is fixed into a tap holder. Three common types are pictured in Photo 2. At top is an 'American' tap wrench, middle is a simple home-made wrench, and bottom is a P&N 'T-bar' tap holder.

The method is illustrated in Figure 2. The operation is eased with a drop of lubricant inserted into the hole. There are various trade fluids, such as 'Rapid Tap™'. However, ordinary transmission fluid, or sewing machine oil, works well for steel, aluminium and brass. Begin by carefully turning the tap clockwise, not more than half a turn, with a gentle downward pressure. Then - and this is an important point otherwise tap seizure or breakage will occur - each time the tap is advanced, turn the tap anti-clockwise a similar amount. You may see and/or feel a slight click as the tap is backed-off. This is the chip, or swarf, being broken from the wall of the hole as the thread is formed. Naturally, the tap must be maintained at right-angles at all times. Do not tap 'under power' - breakage is almost guaranteed.

As an aid to maintaining rightness, consider fabricating a set of tapping aids. These are simply suitably sized pieces of mild-steel or brass rod, centrally bored so that the tap is a slide fit in the hole (Reference 2). Photo 3 shows the job fixed in the brass jaws of my vice. When the tap is withdrawn, any burrs may be

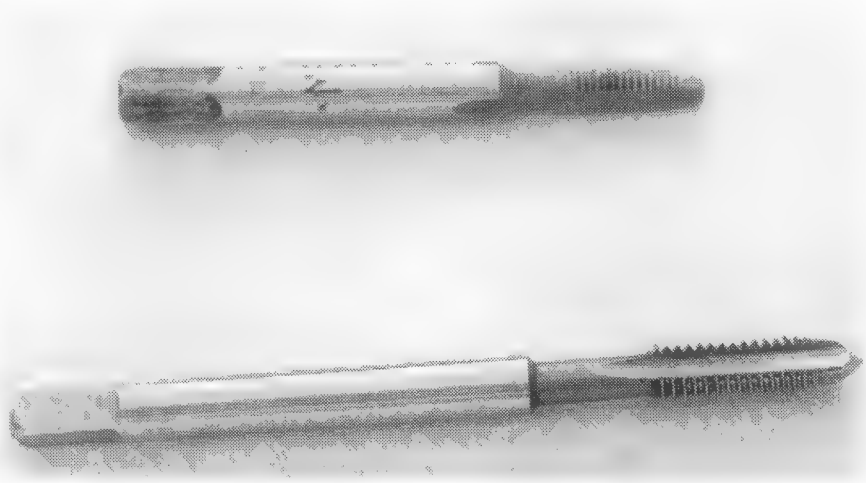


Photo 1

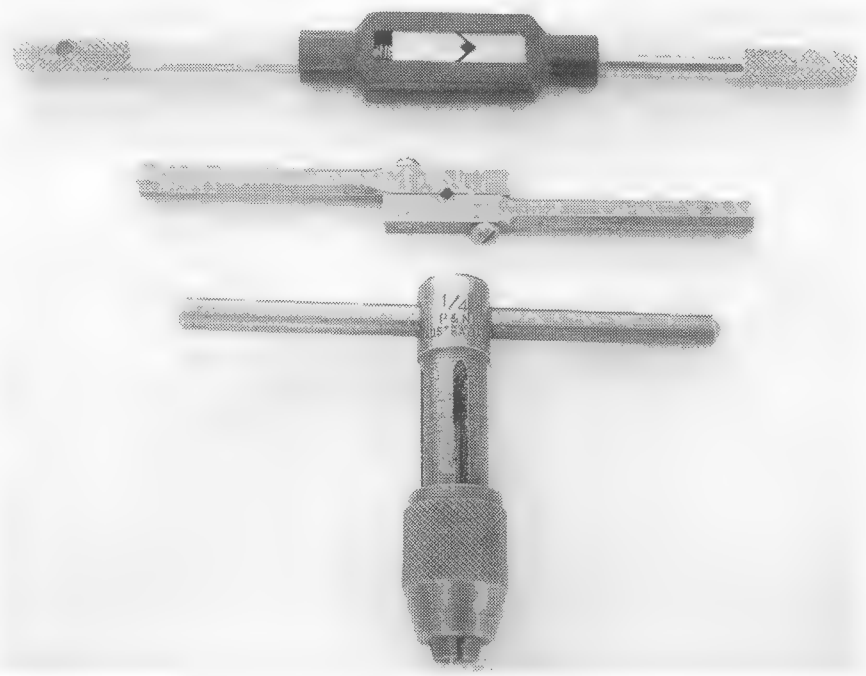
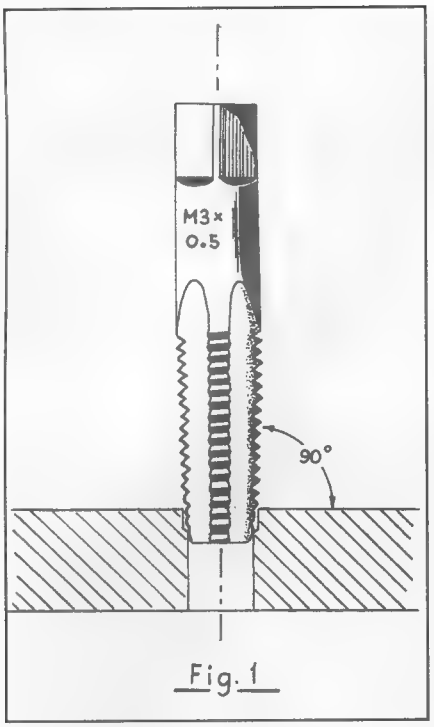


Photo 2



Firure 1 (refer to text)

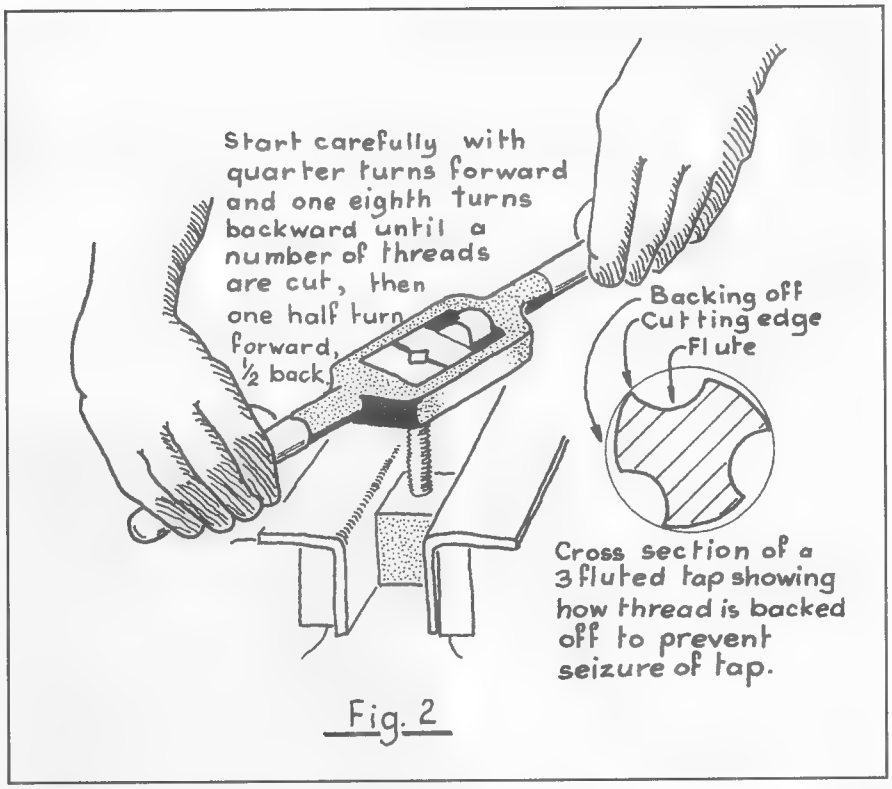


Figure 2 (refer to text)

cleaned up by lightly counter-sinking the hole.

Tap suppliers

3 and 4 mm taper taps, and a T-bar holder are available from Jaycar. Also, engineers' tool suppliers and fastener merchants (e.g. Cost Less Bolts and The Bolt Bloke) usually stock a large range of metal-threading tackle.

References and Further Reading

1. Drills, Taps and Dies; Tubal Cain. #12 in the Nexus Workshop Practice Series.
2. Model Engineering - A Foundation Course; P. Wright. Nexus Books (an excellent text, with much of relevance to radio/electronics metal-work practice).

Photos: Karlen Dockrey.

Table 1

Screw Size	Pitch	Tap Drill	Alternative
mm	mm	mm	
3	0.5	2.5	#39
4	0.7	3.3	#30
5	0.8	4.2	#19

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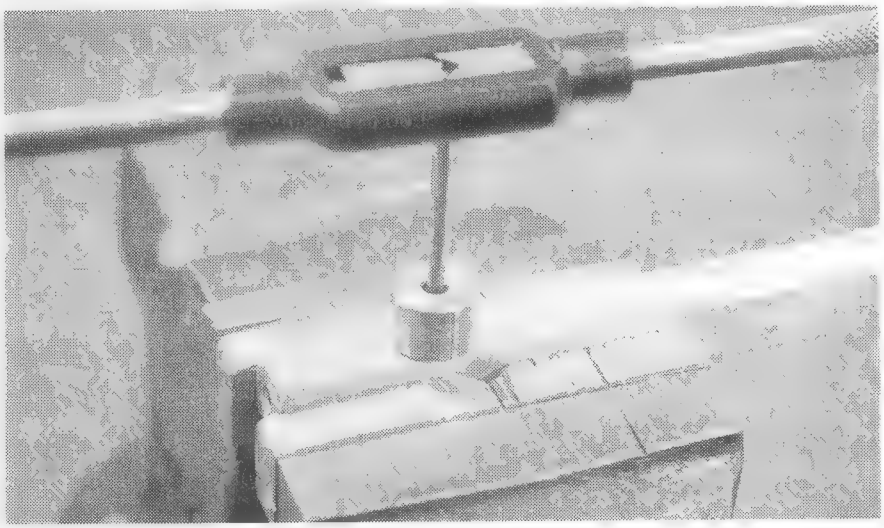

Photo 3

More than a fox hunt!

A big welcome and invitation for all to attend the

60th Urunga Radio Convention

at Urunga. (Easter long weekend 22nd and 23rd March 2008)

Equipment review

The Palstar AT1KP 1200 W antenna tuner

John Morrissey VK3ZRX

Looking at purchasing an antenna tuner? Here is one which could be worthy of your consideration. Rugged, easy to use, and efficient, it is in the upper echelon of antenna tuners.

As with other reviews, this one reflects the observations of one user of the AT1KP HF/6 metre tuner, made by Palstar.

Many designs of antenna tuner (ATU) have appeared over the years, some good, some not so good. For an unbalanced tuner (that is, coax in and coax out) one of the 'classic' designs was the original 'Universal Transmatch' described by Lew McCoy W1ICP, way back in the July 1970 issue of QST. This design, which was the mainstay of ARRL handbooks for many years, was overtaken by the so-called Series-Parallel Capacitance, or SPC, circuit which added an extra capacitor to obtain higher transmitter harmonic rejection by increasing circuit 'Q'. This design by Doug DeMaw W1FB also appeared in a generation of ARRL handbooks. Sadly, nothing in life is free, and while the SPC circuit did achieve its objective, the increased losses in the circuit sparked the search for something better.

Of more recent times, many published and commercial designs have been based around the 'T' circuit. And so is the Palstar AT1KP. It is probably worthwhile exploring (briefly) how the 'T' circuit operates, before we look further at the Palstar which uses a particularly ingenious variant on the classic 'T'.

First, let us look at the 'T' circuit in Figure 1. Pretty simple – just a capacitor (C1) in series with the input, then a shunt inductor (L) to ground, then another series capacitor in the output side. So how does it work?

This is where Figure 2 helps. If we split the circuit in half, with double the inductance (2L) in each half, we can see that we have a pair of 'L' networks – one at the input, the other (backwards) at the output.

The 'L' circuit has the useful property in that can transform a relatively low

Photo 1: A view of the Palstar AT1KP antenna tuning unit.

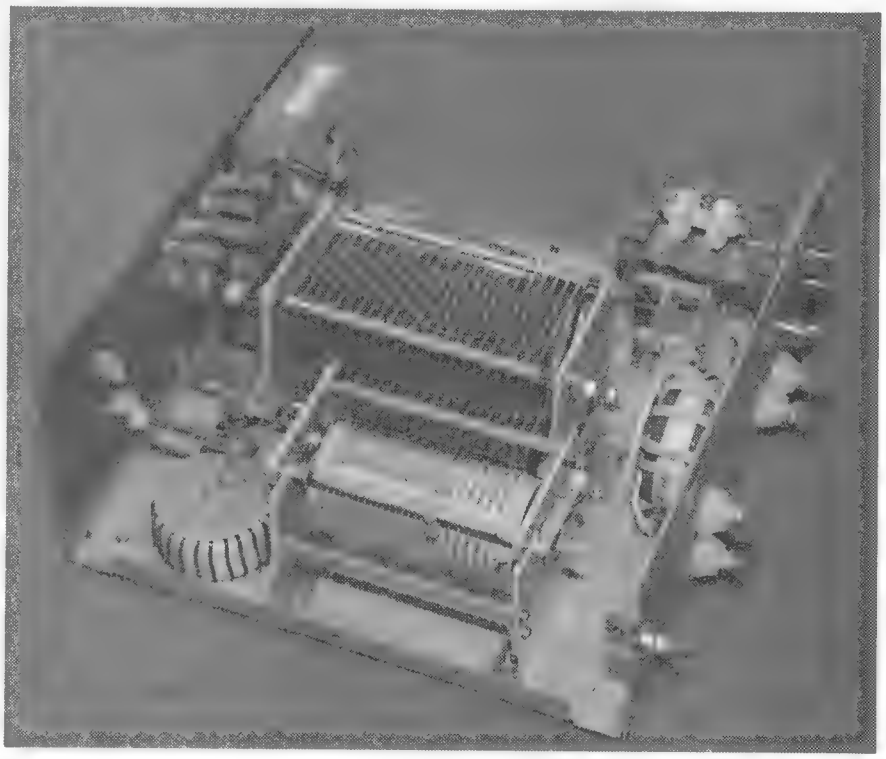

Photo 2: An overall view of the insides of the antenna tuning unit.

impedance at the input to a much higher impedance at the output. This can be shown mathematically, or at a hand-waving level can be deduced from the behaviour of a parallel tuned circuit with a small series resistance. I will leave this to you!

So, the input 'L' section has transformed the input (which we want to be 50 ohms) up to some much higher value – maybe a couple of thousand ohms. Of course, the 'L' section works in reverse too, to transform a high impedance to a lower impedance. And this is just what the output section does. In this case, the output impedance is something other than 50 ohms – it is whatever the impedance is that we wish to match at the end of the coax. While we have discussed the operation of this circuit with nominally resistive input and output impedances, in practice (with suitable choice of components) it can match a wide range of reactance as well.

But the AT1KP, while it uses a 'T' circuit, is different, and this is where the clever bit comes in. As noted above, 'T' circuits use three elements – two variable capacitors and one variable inductance. All are necessary to give a wide tuning range. Such a design takes some skill and practice (not to mention sometimes perseverance!) to 'walk' all the adjustments towards a perfect match. With 3 knobs to twiddle, this can take some time!

In the AT1KP, the two capacitors are ganged together in a differential arrangement. Most people would have come across the usual two-gang variable capacitor – with this, both sections of the capacitor have the same value, increasing or reducing at once. With a differential capacitor, when you turn the knob, as one section increases, the other reduces. But wait, there is more than just reducing the number of knobs!

Not only are there only two adjustments, the controls interact considerably less than is usual with most other circuits. This is not to say they do not interact – just that it is not such a problem as usual. Why is this? Let us look at how it is used.

To tune up an antenna, you start by setting the 'C' knob to about midrange (the manual suggests some starting settings for each band), then find resonance by varying the 'L'. With the 'C' setting midrange, the impedance at the output is the same as the input.

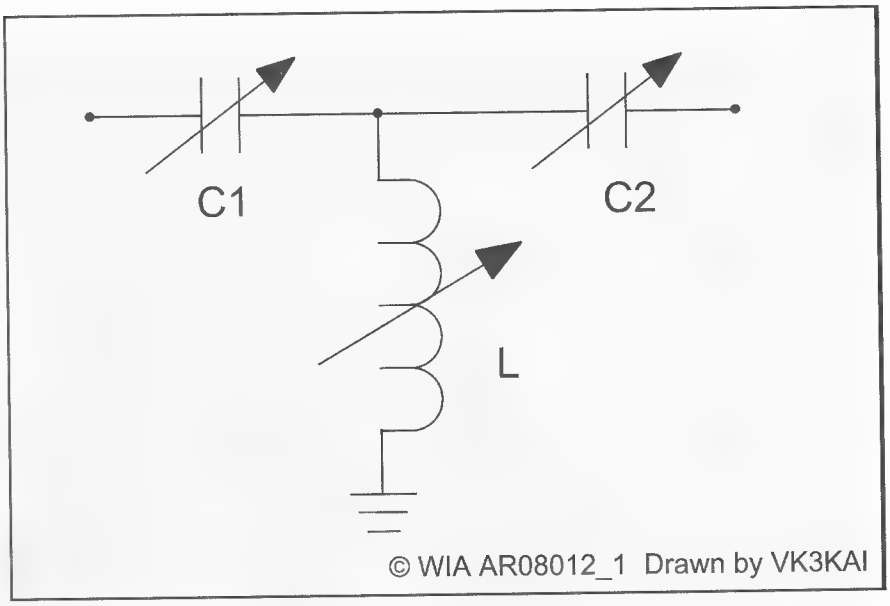

Figure 1: A simplified version of the T circuit of the antenna tuner.

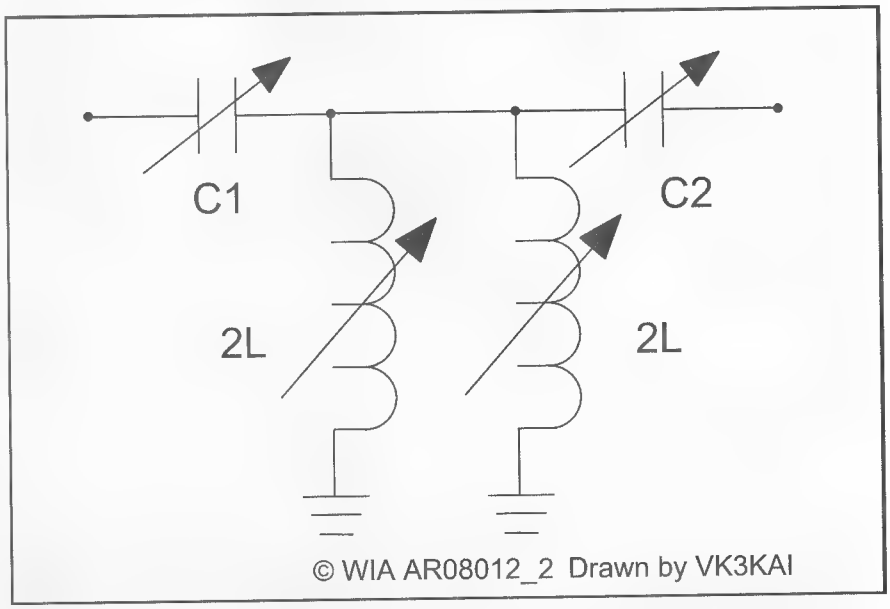

Figure 2: The T circuit can be shown to be equivalent to a pair of L networks.

Now comes another clever bit. Because the impedance transformation depends on the relative value of the two 'C's, varying the 'C' knob works to change the impedance transformation of the whole circuit. And, because the two 'C's are differentially ganged, turning the knob doesn't change the resonant frequency of the whole circuit by much, making it much easier to 'walk' the two adjustments towards the best setting.

I am used to tuning up with an old homebrew 'Ultimate Transmatch' circuit, which operates virtually the same as a 'T' with three adjustments which all interact pretty savagely. Compared to this, the two adjustments on the AT1KP were little short of a revelation! Fast, easy, and smooth are descriptions which come to mind.

With all of this description of its operation behind us, let's look at the beast itself.

The AT1KP comes very securely packed in a large cardboard box, well surrounded by packing. The device itself is not exactly small, and will need a reasonable area (over 300 mm square) on your operating desk. It is no lightweight, either; one Palstar product comes with the proud description "built like a tank" on the box, and I have to

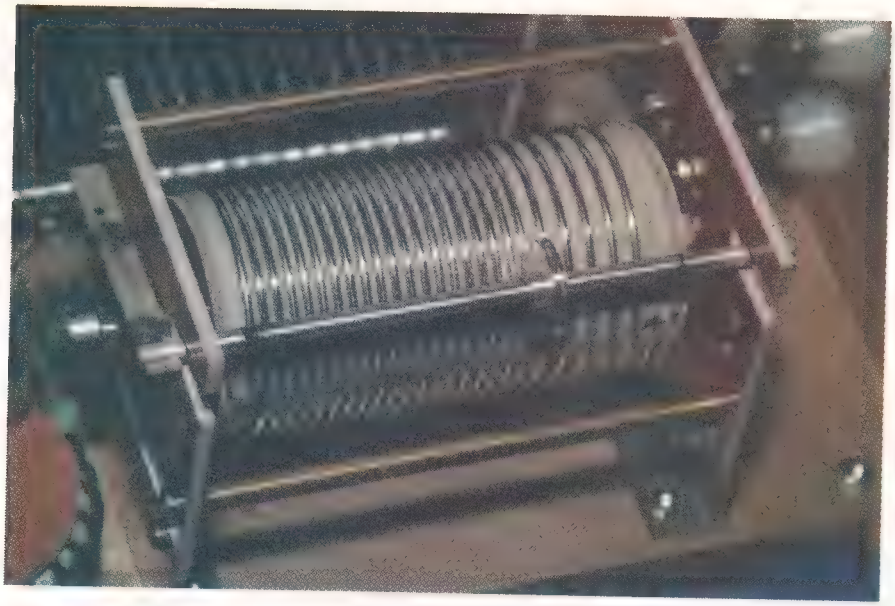

Photo 3: Close up of the roller inductor.

concur this applies to this tuner too! The chassis and case are built of heavy gauge gold aluminium, and look as though you could stand on them without doing any damage. (I do not recommend you try, though!) ***(Editor's note:** The Owner's manual notes that the "chassis and top cover is 11 ga. (.090) aluminum (sic) that has been chem.-film treated in gold color (sic)." The .090 dimension would be in inches, equivalent to approximately 2.3 mm.)*

The AT1KP is rated at 1200 W PEP (800 W CW), over quite a wide range of antenna impedances and over the frequency range 1.8 to 54 MHz. It is also quite flexible, with provision for switching between two antennae, plus a third output for a dummy load or another antenna. Other positions of the function switch allow 'straight through' operation to either antenna or the balanced line outputs, which are also provided for, via a high power balun. The AT1KP does need 12 V DC for some metering functions, the meter lamp and for a relay to switch in some extra "L" for 160 metre operation. The manual notes that a suitable 12 V plug pack is supplied in the US but that does not seem to apply here (Editor's note: TTS Systems advise that they discard the 110 V AC plug pack that is supplied with the unit from the US, thus avoiding possible damage. The unit is supplied with an appropriate DC connector. Given the quantity of units sold locally, buyers could purchase a plug pack, if required, at the same cost as TTS Systems. If TTS Systems supplied the plug pack, the local price would increase by the cost of the plug pack.)

I tried tuning some known 'difficult' loads (well outside the specified range) and the AT1KP had no problems matching them to 50 ohms – although I must admit I only checked this at 100 watts. Higher power would of course cause higher voltages and currents which increase the stress on tuner components considerably, so if you try really nasty loads at high power, you are on your own! I also checked the circuit losses by measuring the power delivered to my 'difficult' load – suffice to say, losses were quite low and were substantially less than my venerable homebrew 'Ultimate Transmatch'. So, no worries there.

Lifting the lid for a peek inside shows a neat layout with high quality components. Of particular note are the wide-spaced dual differential capacitor and the substantial silver-plated roller inductor. The balun is also very substantial (used if you wish to feed a balanced line) and the selector switch is everything you could wish at this power level. This is a well built tuner! The SWR measuring bridge is located at the input to the tuner; the meter has switchable power and SWR ranges, and the cross-needle meter (nice touch, Palstar) can be set to read average or peak power, with a useful selection of power ranges.

Correspondence with the local supplier reveals that all the variable capacitors and roller inductors used in their tuners are manufactured in house by Palstar.

Photo 4: Close up of the differential dual gang capacitor.

Conclusion

Overall, my impression is that the Palstar AT1KP is a well built, heavy duty tuner built with good quality components. It has sufficient flexibility for most purposes and having only the two adjustments makes it easier to operate than most. With current pricing of $630 it is a significant investment, which should give good service for many years.

Thanks to TTS Systems of Tyabb for the loan of the AT1KP for the review.

All photos by the author.

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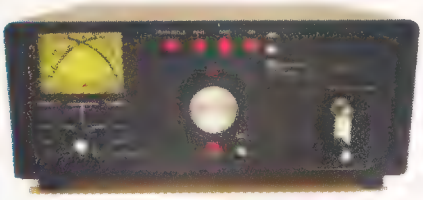
Palstar TTS is the local home of Palstar

Superbly engineered and robustly built in the USA

AT1KP 1200 W manual Tuner

REVIEW PAGE 20



Differential capacitor tuning, 2 stators, 1 rotor. 2 controls to precision tune, ceramic body roller inductor and high power balun. Peak and Peak Hold dual cross-needle metering.

- 1200 watts pep
- 160m to 20m (1200+/-j1200), 10m to 15m (1000+/-j1000)
- Output to both balanced and un-balanced lines
- 20 ohms to 1200 ohms Impedance matching range
- 6 position mode switch for multiple antennas
- Backlit Crossneedle metering (wall transformer inc.)

PALSTAR R30CC Shortwave Receiver

This SWL receiver performs with no overloading in the front end.. Says one fan *"I think this [R30] is one of those not too well known jewels that is already a precious commodity to those who own one."* A high quality compact high performance radio capable of receiving multimode in the 100Khz to 30 Mhz spectrum. Strong signal handling, high sensitivity and dynamic range to eliminatentermodulation interference. 100 programmable memories. The10 AA cell internal battery pack gives portability and endurance away from the mains.

SGC SG-500 Power Cube HF Amplifier

An HF linear amplifier ideal for high power operation in portable, mobile and base station situations. It can deliver up to 500W CW or PEP with as little as 35W drive. Fully automatic bandswitching and RF detect PTT. It uses one of the most advanced self protection systems on the market to provide maximum stability and reliablity FCC Certified.

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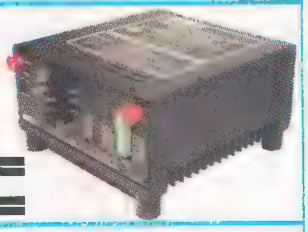
SGC



Orion II

TEN-TEC

Made in Japan' stamped on back panel is not a pre-requisite to buying a high performance HF transceiver. In fact very few or if any of these Asian units can equal the performance of this receiver built in the shadow of the Great Smoky Mountains in the USA.

"Noted receiver guru Rob Sherwood NC0B of Sherwood Engineering now ranks the ORION II as #1 of all HF amateur radio transceivers ever tested for close-in dynamic range, dating back to the 1970's. The original ORION is now listed as #2 overall to the ORION II ".

Call or email us for a full spec sheet

Read the full specs and reviews on the net (e-ham) and make your own judgement

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A 160 metre AM transmitter using pulse width modulation

Leigh Brown VK3TOQ

I wanted to build a transmitter but did not want to build a high voltage device as they are potentially dangerous and the parts are hard to obtain new. I saw this PC motherboard PWM power supply controller that can work down from 2 MHz so I obtained some samples. Please refer to the National Semiconductor data sheet for LM2720M for more details. The device requires an oscillator four times greater in frequency than the carrier for push pull.

I built the low power section on a printed circuit board but some constructors may be able to improvise. I used low cost parts that are readily available except for the mica capacitors and these may be found in the junk box. The output transformer is made from four ferrite tubes or toroids and worked well. I also had good success in using a ferrite switch-mode E core as the transformer in earlier versions. I wound the transformer with multi strand Teflon wire as I had it but PVC multi strand hook-up wire should work at this frequency.

The PWM controller has an inhibit pin (pin 17) and I use this to enable the transmit function. At 14.2 V supply this device can produce 30 W out. If you only have a 12 V supply this will still work but at a lower power output. I used an adjustable voltage regulator to produce 14 V DC at 6 A. In the photograph of the unit most of the area is taken up by the power supply and only a small area is that of the transmitter. It can be made small.

The output filter ideally should be built in a tin can to be really effective. The output filter consisted of four 15 uH chokes in parallel as they were readily available from my supplier and they worked. I also used toroids for the filter. All the filter capacitors have to be mica as other capacitor types tend to get hot at the currents used. Best filter performance was obtained with the output elliptical filter which has the pass frequency of 1.84 MHz and a stop frequency of 3.68 MHz and 5.52 MHz. I have also included an optional two stage PI filter which uses less critical components.

An oscilloscope is the best piece of test equipment to use for fault finding. During setup, the potentiometer is adjusted initially to 2.5 V for an even mark space ratio at the output transistor drains and then for useful power at the output. A current limited supply is necessary when setting up this device as both the transistors can turn on together, a feature that can make life difficult.

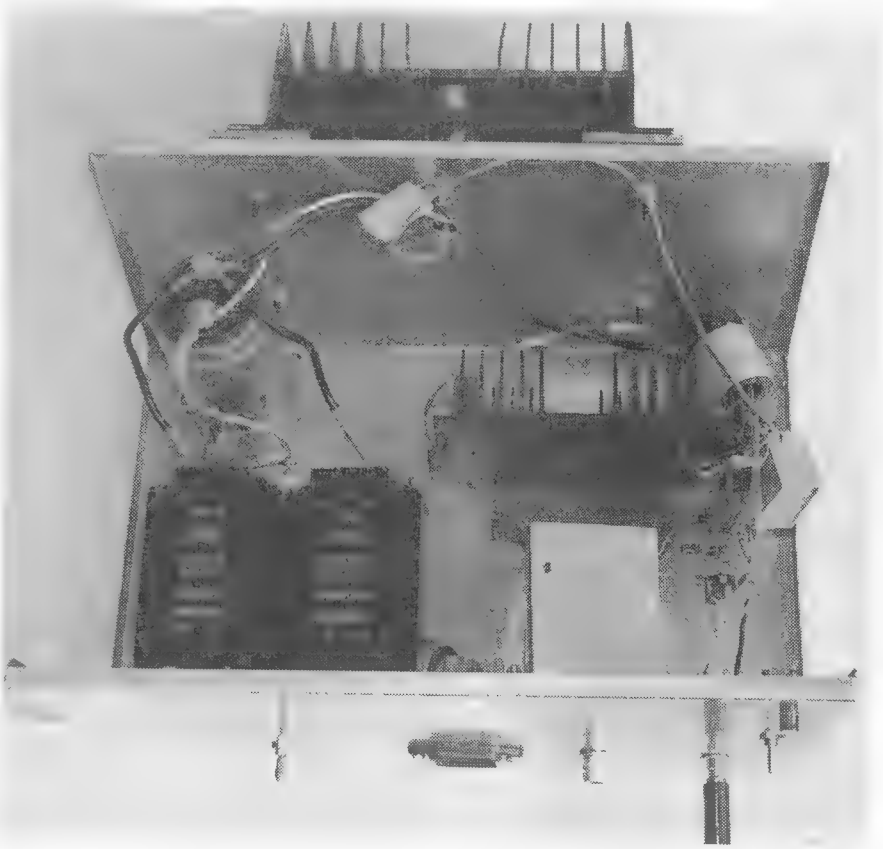
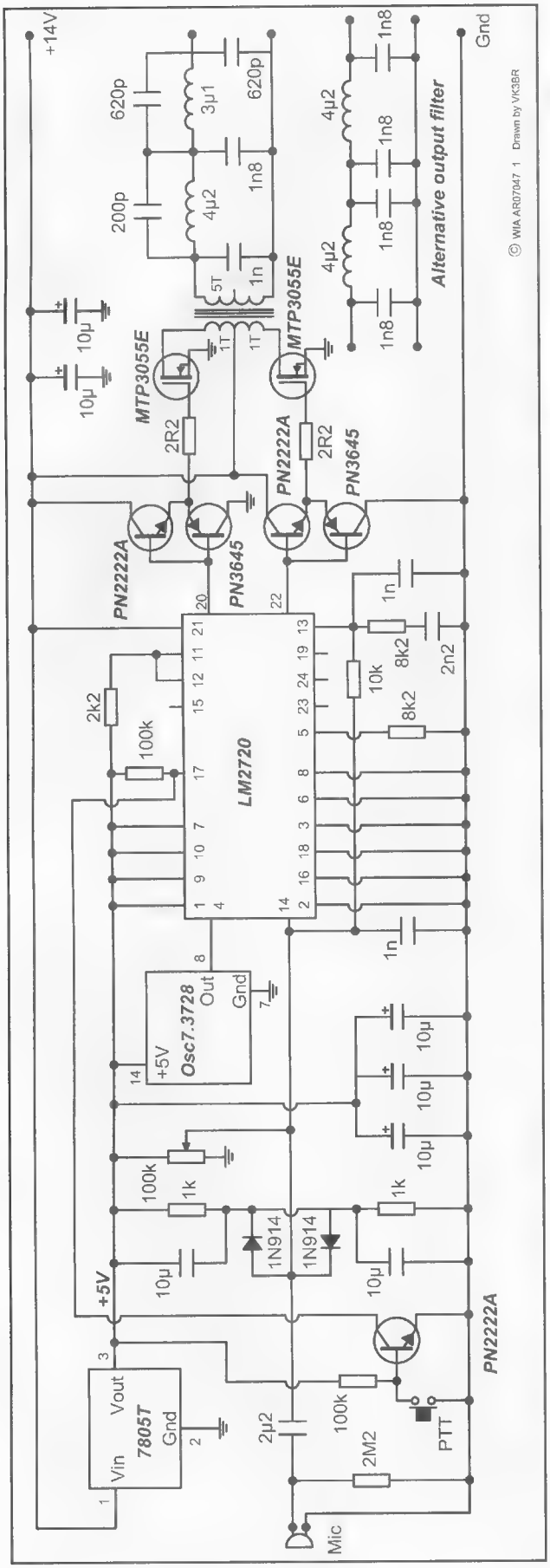


Photo 1 Top view of the transmitter, inside the case.

The unit cannot use low output microphones but many people use pre-amplified microphones which use compression and limiting and these will work best with this transmitter. I found that I have to talk close to the low cost handheld microphone that I use, which was an alarm panel version.

The output transistors, MTP3055E are 12 A 60 V MOSFETS that are low cost and readily available from two or three suppliers. Note that they are not the very common NPN power transistors with a similar part number. Larger MOSFETS were not used due to the dramatic increase in cost and much larger gate capacitance which results in drive transistor over heating. I had much trouble with the drive transistors as some are reverse polarity (EBC versus CBE) and some versions had too much gain to be switching transistors. I ended up testing all transistors with the multimeter HFE tester looking for a gain between 120 and 190. Backward transistors or



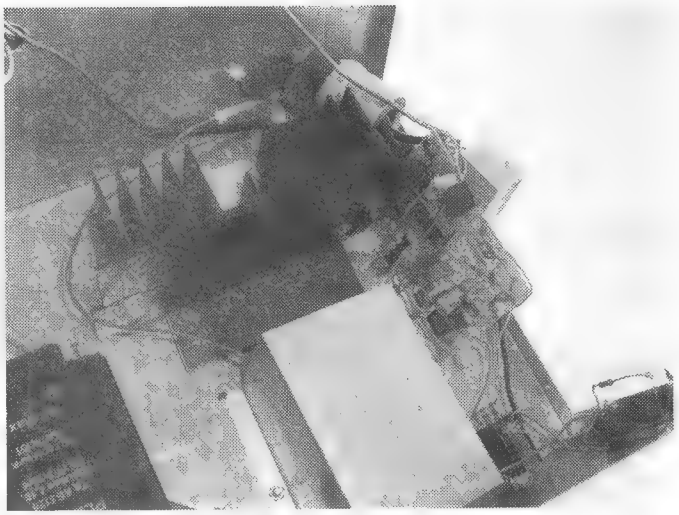


Photo 2. A close up of the board.

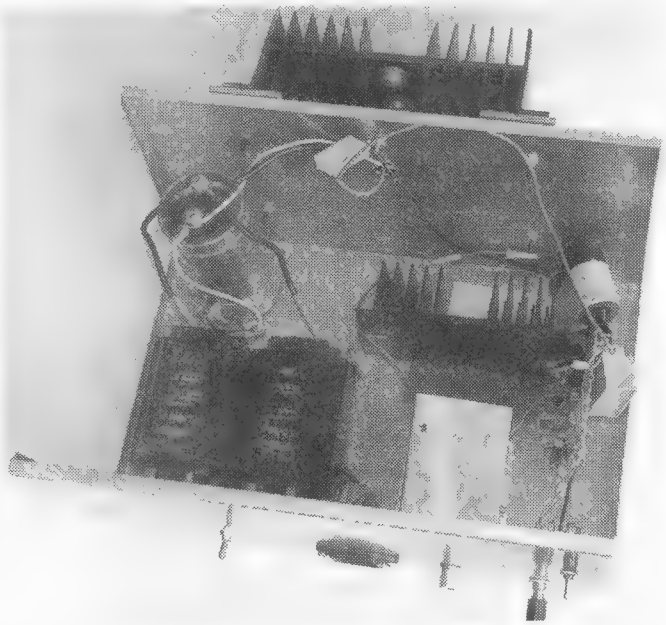


Photo 3. An alternate top view of the transmitter, inside the case.

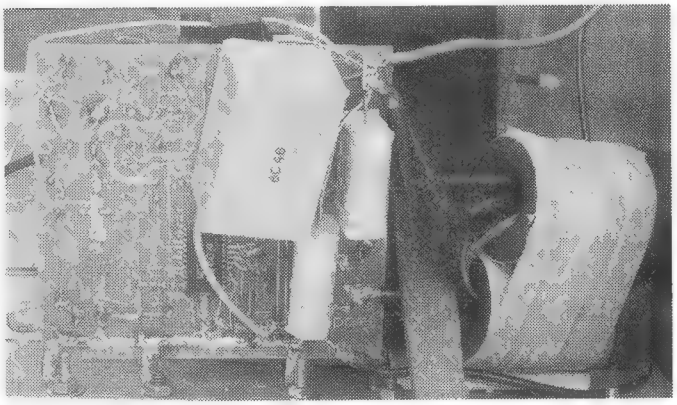


Photo 4. Another close up of board.

LEFT: Figure 1 The circuit diagram.

continued next page

Over to you

Foundation licence privileges

The recent ruling of the ACMA that Foundation licensees cannot use digital voice modes may not be popular, however I agree with it. The Foundation licence is an entry level qualification, in part, designed to enable licence holders to get their feet wet before advancing to a higher grade of licence. It can be argued that the Foundation licence privileges are generous and provide adequate and significant scope for experimentation given the standard of competencies required for this grade of licence. Some readers will recall the relatively limited privileges that applied to holders of the Novice licence when this was first made available in the mid seventies, and yes, I know times have moved on. I am a supporter of the Foundation licence.

Bruce R Kendall VK3WL

Editor's note: Bruce also included a long item regarding on-air behaviour. It may be published separately, if space is available.

Bridge climb

Regarding the September issue of AR:

Sorry to steal Victor Hee's (VK2KVH) thunder, but I climbed the Bridge at age 83½ years. I would not mind betting others older than me have done it too!

Steve VK2ZP
(Former VK1 WIA President)

Equipment reviews

I take umbrage at the aspersions cast by Brian VK2GCE in "Over to you", *AR* November 2007.

I worked forty and a half years as an analytical chemist, contributing to, or producing reports on everything from poo to perfume.

My old boss used to say: *"All we do is humbug, the only real test for anything is how it performs in the REAL world."*

Take the "Humble Chocolate Cake"; we could produce an indigestible report a thousand pages long, detailing the test results to the appropriate Australian Standard, the Cook's resume and testimonials, a soil analysis of the area where the cocoa beans were grown etc, ad nauseam.

The REAL test of the "Humble Chocolate Cake" would be to sit down, on a warm spring morning, with a few friends, a pot of Earl Grey Tea and the apprehensive cake.

After the tea and cake have been consumed, a consensus could be arrived at and dissent to that consensus noted in any report produced.

Would you rather sit in on the morning tea, if only by proxy, or try to digest the thousand pages?

M R McLellan VK2TTI

I refer to the letter in "Over to you" of November 2007 by Brian VK2GCE.

I am not writing on Brian's comment about the review, which has been done in the Editorial in the same issue and makes a lot of sense to me. I wish mainly to comment on the human aspects of the letter.

Neither the editorial policy makers nor the reviewers are machines, they are human beings just like you and me, capable of all the emotional reactions of which we are all (including Brian) fully aware. Brian's letter was at best unkind, at worst downright insulting to the reviewers. I believe nothing could be more likely to make a volunteer say: "Why do I bother? than needless, uncalled for aggression, which anyway is rarely productive.

Sure we all need to be prepared for criticism; it is a spur to improvement. But let it be done with consideration toward those involved.

David Bell VK3FGE

A 160 metre AM transmitter using pulse width modulation

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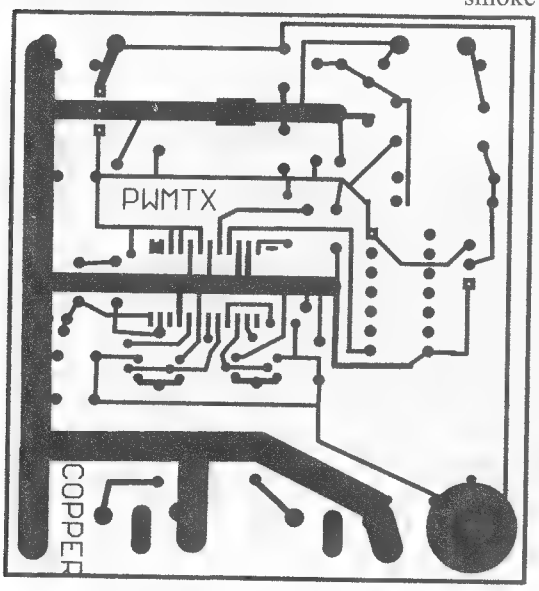

Figure 2 The PCB board.

incorrect switching types resulted in smoke and in one case the transistor melting. This simple part of the construction process took considerable time to sort out.

The LM2720M four phase PWM controller IC is only available in surface mount but this is a large package and can be hand soldered easily. It is mounted on the underside of the single sided PCB. This part is in current production and can be obtained from National Semiconductor directly.

I used an 80 uF photoflash capacitor from a disposable camera as it has very low ESR for the power supply filter. I found that I also had to use a 10 uF polypropylene capacitor to bypass the power input directly at the output transistors.

Here is a parts list and possible suppliers of major components:

LM2720M	National Semiconductor
7.3728MHz oscillator	Rockby 10250
PN2222A	DSE, Rockby
PN2907A	DSE, Rockby
MTP3055E MOSFET	DSE Z2132, Rockby
Transformer:	
4 X ferrite tubes 25 OD 14 ID 20 mm long	Sifor, Rockby
4x15uH choke 1A	Rockby 23979
Limited mica caps	Rockby, otherwise junkbox

I have described a simple novel 160 m AM transmitter made from low cost readily available parts. The device can be made very small with care because it does not use any modulation components.

ar

John Bazley VK4OQ
Email: john.bazley@bigpond.com

Experts say we are not yet at the point when the new Sunspot cycle (#24) will start to make a notable difference to HF propagation, despite some false starts. As conditions improve, so the higher bands will start to improve, easing pressure on the lower frequencies. It will also be a bonus for those stations with large beams for 20 metres and above. It will be good to hear 10 m open again, a wonderful DX band for simple antennas and low power. Despite the poor conditions, the bands are still producing some rare DX.

DXpeditions: Already this year, we have had a DXpedition to FJ by F6EXV and JR2KD, and also Cocos Island and Ducie Island DXpedititons will have taken place. To come are Clipperton Island, Rwanda, Spratly and Djibouti and other surprises still to be announced.

DXCC news

These operations have been approved for DXCC credit: 6E4LM Revillagigedo 2007 Operations, FJ/OH2AM Saint Barthelemy 2007 Operation, TN6X Republic of The Congo 2007 Operation, TN9Z Republic of The Congo 2007 Operation, TT8PK Chad 2007 and current 2008 Operations, XF4YK Revillagigedo 2007 Operations, XF4YW Revillagigedo 2007 Operations, YK9SV Syria 2007 Operation.

OH2BN, on behalf of "The FJ/OH2AM QSL Management Team", says cards should have been printed by January 15. Processing of direct requests were then to begin immediately. The envelopes are ready to go. 23,340 QSOs were made with 11,730 individual DXers. QSL requests are expected for 100 percent because of the close DXCC Honour Roll submission date: March 31. The team planned to make out all QSLs received during January which were to be released during February. The group has offered to put the entire log on Logbook of the World but LoTW technicalities mean the log will not be available there until May, after this year's Honour Roll deadline.

9X: On 11 January, the Rwanda Utilities Regulatory Agency issued an amateur radio licence (9X0R) to EA5RM, and a DXpedition is being planned in a couple of months time. "RURA is trying to establish amateur radio rules in Rwanda with the help of Peter, 9X5SP", EA5RM says, "that within a few months ham radio activities will start to be more usual from this country". EA5RM and his team are grateful to RURA General Director and Peter 9X5SP for their help and cooperation. Full details available at www.9x0r.com Questions and comments can be sent to 9x0r@9x0r.com

ZD7X (KC0W) moved to St. Helena in September 2007, planning to remain for several years, but he will be leaving the island in April 2008. He plans to spend the majority of his last few months as ZD7X on 75/80 metres, CW and SSB. Look for him around 3502 kHz CW and in the DX window on SSB (plus/minus QRM). In recent weeks he has been on the majority of the HF bands. QSL via W0MM, direct or bureau.

Ed Sawyer N1UR plans a DXpedition to the Spratly Islands for March 22nd-30th. Ed is a veteran of operations from A52UR, XX9TEP, C6ARS, PJ2E, FP0GXV and 9M6A. Also going along to the Malaysian Layang Layang Island Resort will be Ed's YL, Christine KB1PQN, on her very first expedition. Focusing on the most needed bands in North America and Europe. they will use an Icom IC-706 and Yaesu FT-897D, each 100 watts, no amps, and a Force 12 Sigma - 40XK and vertical dipoles for 160, 80 and 20 as the antennas. The 9M licence application and Navy permissions have been lodged with help from Doris 9M6DU. The web page has a nice aerial photo of the island: www.n1urspratly.com. QSL via K2RET, Bob Tomkovich, Jr., 405 Hemlock Dr., Lanoka Harbor, NJ 08734 USA.

Trent VK4TI states that the YJ0AX DXpedition for CQ WPX SSB Contest to Vanuatu in March is on. Trent, along with VK3TZ and VK4VCC, plans activity on 3.5 to 28 MHz. QSL via N3SL.

SP3GVX, Marek has been back to the Polish "Henryk Arctowski" scientific station on King George Island, South Shetlands (AN-010) since November 2007, and will stay there until late 2008. Expect him to be active as HF0POL when his workload permits. QSL via SP3WVL. Logs will be uploaded to LoTW.

BOSNIA-HERZEGOVINA: In August the ITU granted a request from the Ministry of Communications and Transport of Bosnia and Herzegovina (BiH) to replace T9A-T9Z with E7A-E7Z. The change was made initially on a provisional basis and was confirmed by the 2007 World Radiocommunication Conference to be effective from the 17th November 2007. The change was announced in Sarajevo on the 18th December. Amateur Radio station licences with E7 prefixes will be issued beginning in January 2008, and other prefixes will be phased out.

K9WZB, Garry Fisher, and his wife Sharon, K7WZB, will be operating from Aruba as P40ZB, April 16-24. They plan to be on 40, 20, 17, 15, 10 and 6 m CW, SSB and RTTY. QSL to K9WZB.

TU5KG (FT5XR and FT5WN), Gildas, is on a fishing boat in the southern Indian Ocean. He has been QRV from the boat in his spare time as FT5XR/MM. Gil was in the waters around Kerguelen Island until about February 15th. From then to March 15th, he will be fishing around Crozet Island. From about March 15th to April 15th back around Kerguelen Island. Gil might be QRV from the island of Kerguelen as FT5XR sometime around March 15th. This will probably be a 24 hour +/- operation. QSL all of Gil's activities via F4EFI.

E4/OM2DX: Mike/OM2DX, Steve/OM3JW, Rudy/OM3PC and Miro/OM5RW made nearly 30,000 QSOs (6653 SSB, 21749 CW and 1048 RTTY) during a recent 7-day operation from Bethlehem, Palestine. "Why they had not spent more time on SSB" —"Doors to Palestine are pretty much ope ned for anybody and every other expedition will spend much more time on SSB than on CW. When the local licensed operators come on air it will be again SSB only".

Happy DXing!

Special thanks to the authors of *The Daily DX* (W3UR), *425 DX News* (I1JQJ) and *QRZ.DX* for information appearing in this month's *DX News & Views*.

For interested readers you can obtain from W3UR a free two week trial of The Daily DX from www.dailydx.com/order.htm

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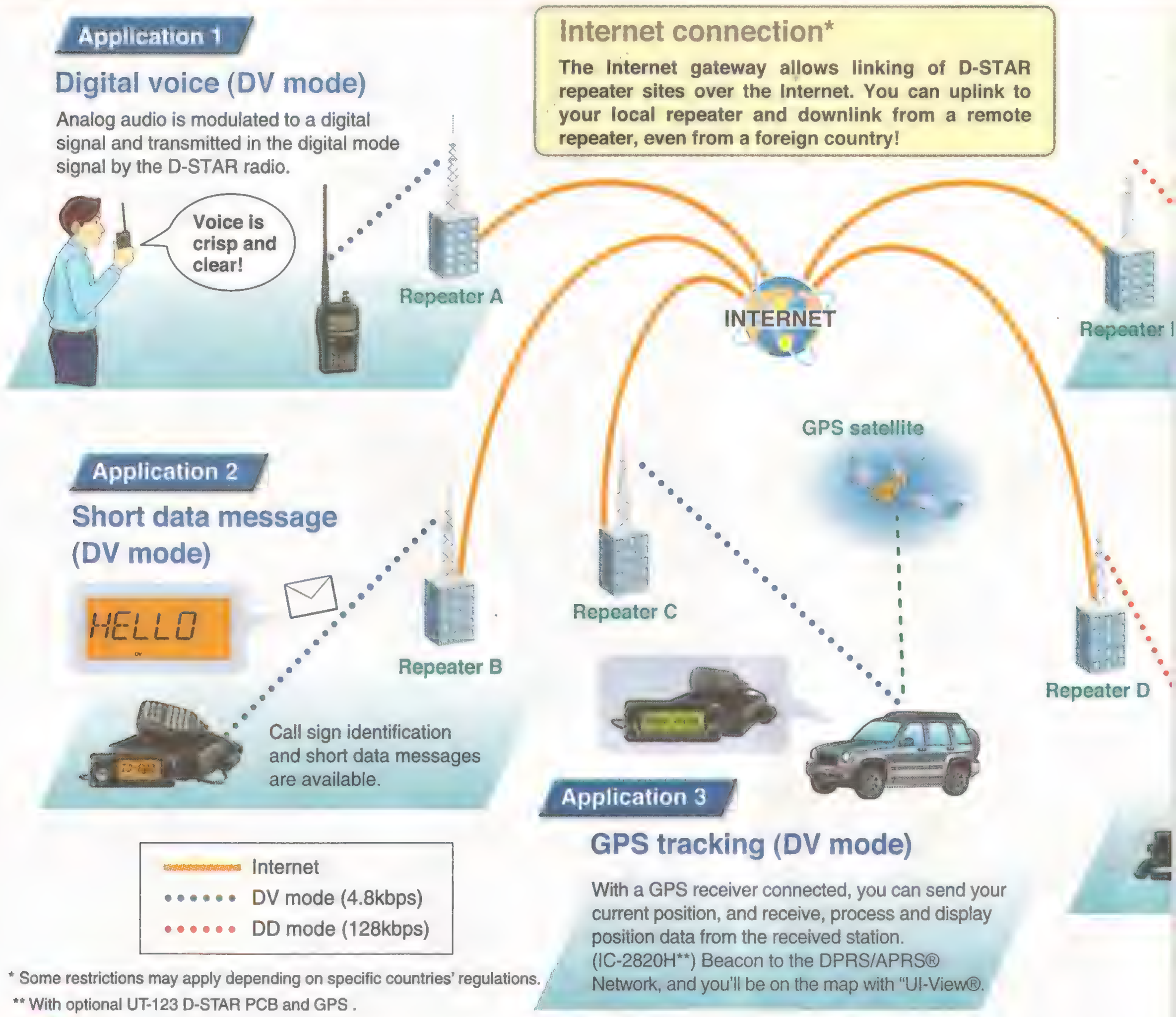

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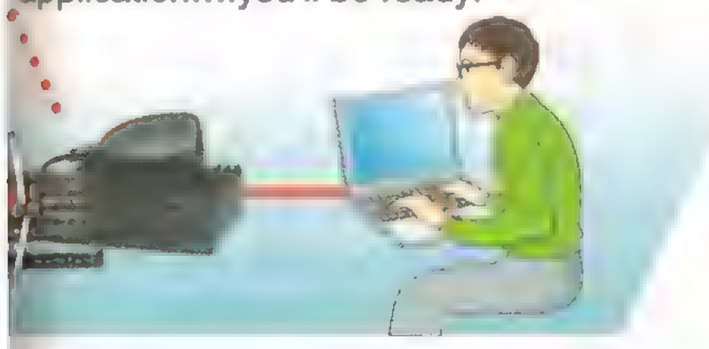

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FACT

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2. "There's no difference between D-STAR and packet"

FACT

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3. "D-STAR is no different from IRLP or Echolink®"

FACT

VOIP systems like IRLP and Echolink® are only capable of routing voice signals. They don't support data exchange at any speed. Calls targeted to a specific user are not possible by any amateur technology except D-STAR.

4. D-STAR is just a digital party line!"

FACT

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5. "D-STAR is a replacement for broadband home Internet"

FACT

Truly a fantasy! D-STAR can connect a user to the internet, true, but all of the amateur radio restrictions on commercial activity still remain in place. D-STAR will provide the tools for a lot of great amateur innovation, but it's not intended to replace Internet providers.

6. "D-STAR won't work with APRS®"

FACT

Except for the ID-1, All D-STAR radios can do DPRS when connected to a GPS receiver. The exciting thing is, with D-STAR being an open protocol, software experimenter, Pete Lovell AE5PL, has written a program that interfaces DPRS to APRS® and sends the converted APRS data to your APRS IS gateway. This means you can see all the new D-STAR stations on UI-View®. With the "D-STARTNC2" application, any D-STAR repeater with a gateway can send DPRS □APRS data to the APRS Internet system. The D-STAR team will be implementing this interface in Australia.

7. "I'll be locked into Icom equipment forever."

FACT

While Icom is the first manufacturer to support D-STAR, any manufacturer or amateur can use the JARL standards to create equipment – transceivers, repeaters, and gateways – compatible with the D-STAR system. As the D-STAR system grows, look for other manufacturers to join the fun.

News from...

VK2

Tim Mills VK2ZTM.
c/- vk2wi@ozemail.com.au

Clubs

The Urunga Convention over Easter Saturday and Sunday will be the 60th annual event. Details of the event received coverage in last month's AR, on page 39. Get your fox hunt gear ready now; book your accommodation and practice to give the VK3s a good run. Check out via the various contact details given last month or seek out Secretary Ken VK2DGT.

Oxley Region ARC has a new venue for their monthly general meeting on the first Saturday afternoon and the informal evenings on the second and fourth Fridays, the function room of the Port City Bowling Club in Owen Street, Port Macquarie, on the ocean side of the CBD, above Town Beach. They previously met in the SES headquarters in Gordon Street. The SES will soon be moving to their purpose-built new headquarters, which does not have provision for external groups to meet. Call in to their two metre nets on one of the local repeaters – Sunday morning and Wednesday evening. Visit the June long weekend annual Field Day. Regular Foundation and Standard courses are held in Wauchope and Port Macquarie. Register by mail to ORARC, PO Box 712, Port Macquarie, NSW 2444.

The Mid South Coast ARG for some decades operated their VK2RMU 6700 repeater from an elevated site, inland from Milton. However, early this year the site owner rescinded approval, advises MSCARC Secretary Stuart VK2LSB. The equipment has been withdrawn and the service is currently off air while an alternate site is sought.

The Mid North Coast ARC conducted a great 'Expo' on January 20th at Coffs Harbour. There was a good attendance of traders and various service organisations filling the hall to capacity. 120 registrations were recorded, advises organizer Gary VK2ZKT. The group is very active throughout the year with regular meetings, education facilities, developing amateur radio related kits and establishing repeaters, the first of which will be on 70 cm, to be followed by 2 metres and a 6 metre access point. There is talk of another 'field day' in Spring.

The Orange and District ARC has an expanding interest in APRS. They are in the process of setting a digipeater on the nearby Mt. Canobolas to increase the coverage of the network in western NSW. They recently held an antenna building weekend in preparation for the John Moyle Field Day. The club meets monthly on the first Friday evening in the RAAF 29 Flight clubrooms at 64 Warrendine Street, Orange at 7.30 pm., advises Secretary Bob VK2MRP. Email secretary@odarc.org The web page www.odarc.org or mail to P.O. Box 1065, Orange, NSW 2800.

The Taree and District ARC resume their meetings on the first Tuesday evening at Taree TAFE. Last month, while the TAFE was closed, they met at Old Bar. One of their repeaters is VK2RRE. For many years they have publicised its existence by a sign displaying the callsign and frequency mounted beside the Pacific Highway. You can observe it when travelling south towards Taree from Port Macquarie. It is starting to become invisible now the drought has 'broken' and the small trees in front of it are growing well.

The Waverley ARS was formed in 1919. Next year will be their 90th anniversary and they are seeking to contact past members who may like to be involved in the event. Check out vk2bv.org or call Simon VK2UA on 02 9328 7141. Their annual auction will be Saturday 21st June.

Tamworth Radio Club Inc meet on the first Friday evening at the Tamworth Oxley Scout Hall, Cartage and Hall Street, Tamworth. They operate repeaters VK2RTM near Nundle on 146.750 and VK2RMO near Manilla on 146.850. In Tamworth, there is VK2RAA on 439.375. They also run a Home Hosting program. Details via telephone 02 6765 9052 or check out the web site www.trci.org.au advises John VK2HUP, their Publicity Officer.

ARNSW

ARNSW has advised that their AGM will be held on Saturday 12th April 2008 at the previously used venue – the Ryde Eastwood Leagues Club – at West Ryde, with a 10 am start. The reports and meeting details will be distributed by post or email later this month.

Ninety eight years ago this month, a meeting was held in Sydney, by 'Experimenters' who were having problems with the 'authorities' over the cost of the licence fee. They formed an 'Institute'. That meeting grew into the NSW Division and the WIA that we have today. Forty years ago in early July 1968, permission was granted to establish repeaters. The first planning meeting was held in Wodonga, in September of the same year.

There will be a Trash and Treasure at Dural on Sunday morning, 30th March. In the afternoon, the Home Brew and Experimenters group will have their meeting.

Alan VK2ADB and Ross VK2ER provide the live Morse training transmissions on Tuesday and Thursday evenings respectively at 2000 local as VK2BWI portable on 3550 kHz. They welcome callbacks after the sessions.

VK2WI

New entry gates were installed at VK2WI last month. The two three metre wide gates will allow normal entry by one being open, or when there are T&T events or when a long vehicle like a crane/cherry picker needs to enter, both can be opened. The gates are set in from the recent erected new front fence with angled panels each side to join the fence and gates. The existing circular driveway also assists directional traffic flow.

It is time to prepare the second quarter roster for the morning and evening VK2WI News sessions. This period is from 6th April until 29th June. Those interested in helping on the team should contact the roster coordinator John VK2JJV. Call VK2WI during the news session 02 9651 1489 or the office at other times 02 9651 1490 or an email to arnews@tpg.com.au If you still have some stamps, you can write to ARNSW, P. O. Box 6044, Dural Delivery Centre NSW 2158.

73. Tim VK2ZTM.

VK3

Amateur Radio Victoria News

Website: www.amateurradio.com.au
Email: arv@amateurradio.com.au
Jim Linton VK3PC

Ash Wednesday Anniversary

It is a quarter of a century ago that Victoria and South Australia were gripped by wildfire on 16 February 1983, resulting in the loss of 75 people and widespread damage.

The combination of a drought, gale force winds, temperature in the 40s and low humidity created ideal conditions for the rapid spread of fire. Multiple fires broke out and firefighting services were quickly overwhelmed.

There were radio amateurs around Victoria providing emergency communications. WICEN Victoria until then had been a relatively small group providing mainly support communications for a few community events.

Ash Wednesday changed that. WICEN not only responded to the bushfire disaster but then actively engaged in the disaster recovery phase by providing vital inter-agency communications.

WICEN gained respect and renewed recognition. The Communications Minister Neil Brown was in praise of its voluntary contributions. It was called and gave evidence to the Miller Inquiry into Ash Wednesday.

The radio amateurs involved in the 1983 disaster had continued a tradition that began with the Black Friday Bushfires in 1939, involved Darwin's Tropical Cyclone Tracy in 1974, Newcastle Earthquake 1989, the Bogong Fires 2003 and on many more occasions.

New Licence Conditions

The ACMA has signed off the Radiocommunications Licence Conditions (Amateur Licence) Amendment Determination 2008 and other documents relevant to amateur radio.

Please take the time to read the information that is available on the Amateur Radio Victoria website and elsewhere. A new Licence Condition Determination (LCD) consolidation will be issued later. Each amateur licensee is expected to be aware of the contents of the LCD.

RadioFest No. 2

A truly wonderful social occasion is probably the best way to sum up the Centre Victoria RadioFest at Kyneton on Sunday 10 February.

One of the "Club Corner" stands at Centre Victoria Radiofest

Almost 700 attended the event which also this year attracted more commercial traders, second-hand sellers, club and organisation displays and activities.

The 2 m, 70 cm and 23 cm antenna test range mounted by Peter Cossins VK3BFG and Phil Gardener VK3GMZ was extremely popular. Instead of running two hours it went double that time. The results are posted at www.radiofest.amateurradio.com.au

The two Icom D-STAR lectures and presentations by Peter Willmott VK3TQ and Richard Hoskins VK3JFK had 110 people attend who were keen to learn more about this new technology.

The PicAStar software defined radio users enjoyed meeting each other, a group shoot and lecture from Paul Engler VK3XDE. There are now 30 builders in VK3 and they have a weekly net on 3.655 MHz Mondays at 8 pm local time.

The Club Corner displays, Terry Murphy's Dipole Factory, antenna guru Phil Grimshaw VK4KVK mini-lecture and Charmain's children's face-painting were all interesting.

The Voice of the RadioFest, Bruce Lees VK3FFF, did many roving mike segments during the day and 'called' the prize draw with tickets drawn by Monika Crockett VK3FMON.

The door prize draw included lucky ticket holders John Coombes VK3UO winning an Icom IC-91AD D-STAR transceiver while Lia Pittard is now the proud owner of a Yaesu/Vertex FT7800 VHF/UHF transceiver.

Clearly noticeable were the smiles on everyone's faces both when they first arrived at the RadioFest and when leaving at the end of the day. Several interstate visitors told us on the day and via email that trip was well worth it.

Thank you to everyone who participated, particularly the Event Team of volunteers from Amateur Radio Victoria, Central Goldfields and Midland Amateur Radio Clubs.

Foundation Licence Classes

Enrolments for the next Foundation Licence courses and assessment weekends on 15-16 March will close soon. Inquiries to Barry Robinson VK3JBR on phone 0428 516 001 or arv@amateurradio.com.au

Membership Inquiries

It is easy and affordable to join and support Amateur Radio Victoria. Membership for two years is $30 Full or Associate Member and $25 Concession. Email us for a membership application form or download one from the website.

News from...

Geelong Amateur Radio Club – The GARC

Tony Collis VK3JGC

2008 Summer VHF – UHF Field Day

This took place over a 24 hour period in the Barrabool Hills in January. The picture below taken by David VK3QM shows the multitude of dishes and Yagis used by the team during the contest using the call sign VK3UHF.

The submitted log book shows that from midday on 12th January to midday on 13th January, the following results were achieved in the Multi Operator Section:

Frequency	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	5.7 GHz	10 GHz	24 GHz
Contacts	47	72	51	30	9	6	14	2
Power	100 W	200 W	200 W	60 W	25 W	<60 W	0.5–15 W	3 W

With the multipliers for Locators activated, Locators worked and band multipliers applied to the contacts, a provisional score of 5,608 was achieved.

Once again the station operators were David VK3QM, Chas VK3PY and Charles VK3NX.

Amongst the notable contacts were:

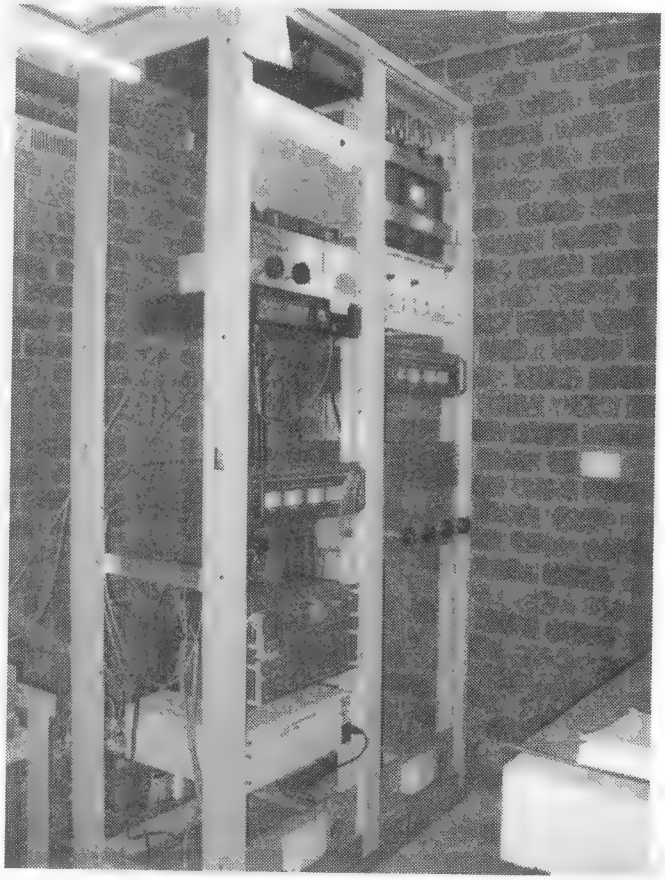
- Two contacts on 24 GHz into Melbourne.
- VK3BJM/P in QF15 near Mildura on 2 m and 70 cm
- Contacts were established with VK1, VK2, VK3, VK4 and VK5 but not VK6 or VK7 this time.

The weather during the field day period was windy but quite pleasant from an operational stand-point. Time was also spent checking the theory that the number of contacts achievable was inversely proportional to the amount of red wine consumed; the jury is still out on that issue and it is believed that it will take several more field trips, significant personal sacrifice and dedication to substantiate this theory.

The GARC Net

The GARC net is held on Wednesday nights at 8 pm using the VK3RGL repeater on 147 MHz, hosted by the club

Chas VK3PY, standing, and Charles VK3NX operating



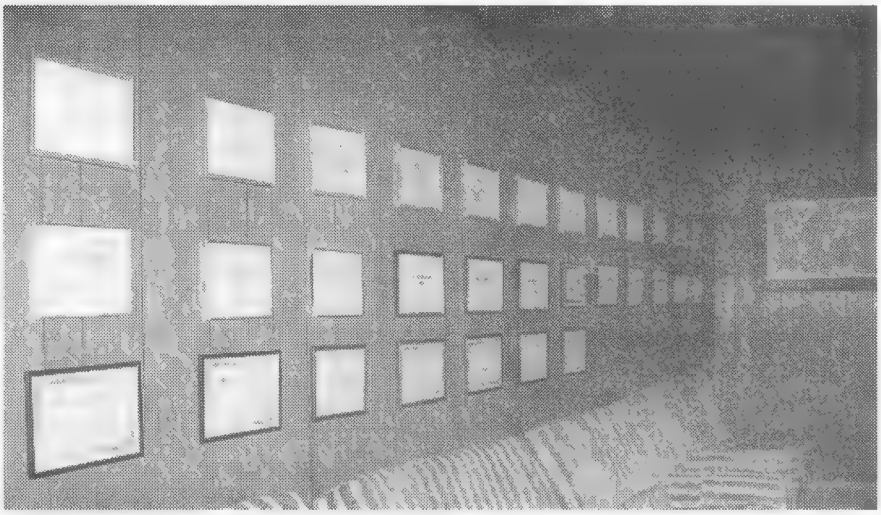
GARC installation at Mount Anakie for the beacons and repeaters

president, Ian VK3VIN, using the club call sign VK3ATL. All are welcome to join in.

The Club Website

The web site at www.vk3atl.org has recently undergone a complete re-build through the efforts of Peter VK3ZAV and Shane VK3FSRG and offers, amongst other facilities:

- A project page covering current club activities
- A very useful link page to web sites with specific amateur radio content
- Downloads for designing antennas by computer and access to EchoLink
- Contact details for those members of the public wishing to further their interest in amateur radio.



The above picture shows the GARC Field Day certificates in the club house lounge

VK5

Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The annual barbecue was held at a different venue this year. The venue was pronounced a good choice. We went to a small green area created by one of the local service clubs, next door to the Bridgewater mill, in the Adelaide Hills.

The area was large enough for us to put up some tents for shelter, although there were also several very large trees to provide shade for most of the day, but small enough to keep us all together as a unit. There was an electric barbecue, so the danger of open fires and the possibility of a fire ban day was eliminated.

The day and the venue were voted a success. Of course there were some radios on show, but there was a lot of social exchange too.

A special evening lecture

When the committee was told Professor Mike Underwood was to be in Adelaide for a day, arrangements were rapidly made to have him talk to us about his small antennas. Many amateurs have been following the discussions in Radcom over some time, between the proponents and opponents of small antennas for small spaces, so there was considerable interest.

Despite the short notice, there were nearly a hundred amateurs from all the radio clubs in the metropolitan area of Adelaide, present at 7.00 local time on Monday 4th February.

They were not disappointed. The lecture was well prepared, interesting

CALL FOR PAPERS

Amateurs (and others with material to contribute) are invited to submit titles and outlines for topics to be presented at GippsTech2008. Presentation slots can be brief (5 – 10 minutes) through to one hour. Anything longer – you will need to justify!!

Presentations can be formal or informal, or display. We use a lecture theatre for the formal (and semi-formal) presentations. Displays are open during coffee/tea breaks and after lunch. Potential presenters are welcome to contact the Chair of the Organising Committee, Peter VK3KAI (vk3kai@wia.org.au), direct for further information or to suggest a topic.

The conference is held in Churchill about 170 km east of Melbourne. Further details can be found at the Eastern Zone Amateur Radio Club web site at http://www.vk3bez.org/

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News from...

Some of the group at the picnic: Clockwise from the left: not known, Jim VK5JST, Steve VK5AIM, Keith VK5OQ, Norm VK5JNL, and John VK5EMI (President AHARS). Photo by Lyle VK5ZNB.

and controversial. There is little doubt that a number of experiments with loops and hairpins will be brought along to future radio club meetings all over the city.

One point Mike G3LHZ emphasised is that he is only interested in heuristic results. To you and me that means he is only interested in results achieved by experimenting and testing. Much of the argument against small antennas rests on hearsay and long-held but not proven beliefs rather than because people have built them and tested them in the field.

If the antennas work for us as we were shown they work in the UK, there could be an application for amateurs who need to move into retirement villages where they are not permitted to put up masts.

No doubt more will be heard of this topic in the future!

There is a link from the AHARS website (http://www.qsl.net/vk5bar/) to the full lecture given by Mike G3LHZ for those who are interested.

RAAF SIGNALS & RADAR ASSOCIATION OF SA

The annual luncheon will be held on Thursday 17 April 2008

12 noon for 1230 lunch

(Please bring your Seniors Card)

Venue: **Marion Hotel, Marion Road, Mitchell Park**
Public transport Bus M44, Stop 24

RSVP to one of the following committee members before 14/4/2008:

Secretary: **Ray Deane VK5RK Phone 8271 5401**
Assistant Secretary: **Ron Coat VK5RV Phone 8296 6681**

Ray Deane
Honorary Secretary

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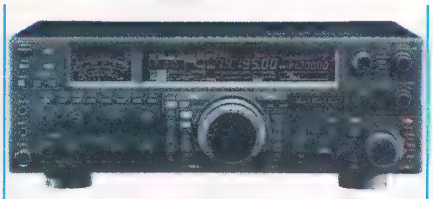

YAESU FT-2000 $3299
HF/6m/ATU/AC/DSP Transceiver

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$179
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ICOM IC-208H $399
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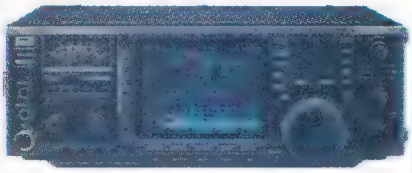

ICOM IC-756PRO3 $4199
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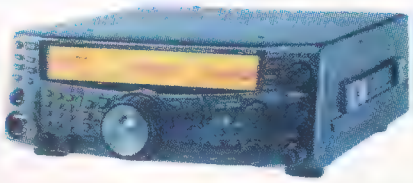

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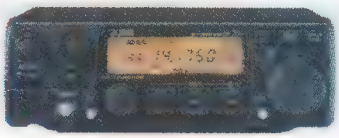

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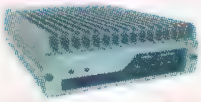
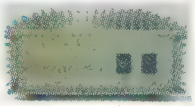
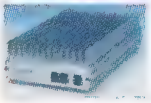


THP HL-100B DX..$649
HF 100 W AMPLIFIER

THP HL-500V..$4499
2 m 500W AMPLIFIER



DX-500..$999
HF 500 W OUTPUT



PA 200V/C..$499
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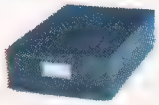

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News from...

VK7

Justin Giles-Clark VK7TW
Email: vk7tw@wia.org.au Regional Web Site: reast.asn.au

VK7 QSL arrangements changes

The WIA board has approved the following changes to member QSL services. The major change in VK7 is the request for WIA members to forward their outwards QSL cards direct to the WIA Outwards QSL Bureau at Teralba. The address is: WIA Outwards QSL Bureau, P.O. Box 3073, Teralba NSW 2284. The inwards QSL cards arrangement will not change with local QSL managers receiving cards from the WIA Inward QSL Bureau and distributing them to WIA members. For more information check out the information at: http://reast.asn.au/contacts.php#qsl

Grote Reber Dedication

There is now a new visitor centre and museum that has been established adjacent to the University of Tasmania's radio telescope facility at Mt Pleasant, near Hobart. It was dedicated to the memory of the world's first radio astronomer, Grote Reber, who lived the second half of his life in Tasmania. Grote was a radio amateur and was responsible for building the world's first purpose-built dish-type radio telescope in the US in 1937. He moved to Tasmania in the 1950s and began observations in 1955 with a one square kilometre antenna array north of Bothwell on a wavelength of 144 metres. The museum will be open to the public, by appointment only, from early March.

Meet the Voice BBQ 2008

A reminder that the Sewing Circle net is again hosting the "Meet the Voice" event in the Ross Caravan Park, on Sunday April 6, 2008, starting 10:00 am. The format will be a guest speaker then a BBQ as well as many eyeball QSOs. Mark your diaries and we look forward to seeing you.

North West Tasmanian Amateur Radio Interest Group

Al K6YRA and Bunny W6BUN visited Burnie in January and were hosted by Jim VK7JH. A quick tour of the NW and a check of band conditions as Al is a mad keen DXer. Unfortunately, the bands were dead and just as the cruise ship disappeared over the horizon, 20 m opened! NWTARIG held its AGM on Saturday 2nd February 2008 at Ulverstone where it was reported that membership had increased slightly to 41 and the following office holders were elected:

President: Tony Bedelph VK7AX
Vice President: Ivan Ling VK7XL
Secretary: Steve Bush VK7EQ
Treasurer: Shirley Hardstaff VK7HSC
Executive: Keith Winkler VK7YBP

Northern Tasmania Amateur Radio Club

Thanks to Brian VK7RR and Joe VK7JG for their work on the broadcast link between VK7RIN and VK7RAA and thanks also to Karl VK7HDX and Jason VK7ZJA for lugging the water bottles up to the top of Mt Arthur to top up the batteries. On ya Guys! Rick VK7HBR, with the assistance of Tony VK7AX, has been trialling nightly broadcasts via his EchoLink node on 145.425 MHz in the Launceston area. There is a different program each night of the week from 7:30 pm. Callbacks are much appreciated.

WICEN Tasmania (South)

Saturday 16th February saw the WICEN crew providing safety checkpoints for the Southern Tasmanian Endurance Riders' 20, 40 and 80 km rides in Southern Tasmanian forests. Planning for Targa Tasmania 2008 is well underway with the course this year being run mainly in the North and North West. The event is from April 15 to 20. If interested in helping out, please contact the Targa Communications Officer - Administration - Roger VK7ARN.

Radio and Electronics Association of Southern Tasmania

Thanks to Dave VK7DM, Roger VK7ARN and the team of helpers who

continued on page 38

The author interviewing Andreas IK1PMR on ATV. (Photo by VK7XDY)

Christine Taylor VK5CTY

The ALARAMEET in Tasmania

Have you sent off your expression of interest? If so, you should have received a lovely booklet from the Tourist Bureau showing you all the interesting and beautiful places to see in Tasmania.

Susan has also now calculated the cost of the various sections of the MEET and asked for a deposit so she can start making firm bookings. It is all coming together. I do hope you will be there.

A number of us are already planning to travel over to the island on the "Spirit of Tasmania" on the Wednesday night. Some will have caravans, some will not, but we will be able to start our ALARAMEET early, that night. The caravanners and some of the other travellers are planning to see something more of Tasmania, so are planning to be there for an extra week or fortnight. Whatever your plans are, there is likely to be someone else going the same way. It should be an experience to remember.

For more information contact Susan VK7LUV on the special ALARAMEET email address vk7luv_susan@yahoo.com.au or write to her at PO Box 81 Ulverstone Tas. 7315.

A Saturday Luncheon in VK3

On February 1st nine YLs and a number of OMs met for lunch in Tooradin. By all accounts a good time was had and arrangements were made for the next luncheon in a different venue.

Each special lunch is arranged by a different YL, so the travelling is shared around. What a good idea to allow us to see another part of our state! Jean VK3FJYL arranged the first luncheon and Pat VK3OZ arranged this one in Tooradin.

The VK3 girls have informal morning teas on a weekday as well as the larger weekend lunches like this one. It is great to see this social activity growing now that the Foundation licence has brought more people into the hobby.

The VK3 Luncheon. L-R Susan VK3FXXX, Claureen VK3KMB, Jean VK3FJYL, Pat VK3OZ, Jenny VK5AWN/3, and Dianne VK3FDIZ. Sitting down are Maree VK3SAT, Naree and Pam VK3NK. Maree and Claureen are new ALARA members. Welcome Maree and Claureen.

The regular lunches in VK5 continue

The number at the monthly lunches varies between five or six and as many as a dozen but there never seems to be a lack of topics for discussion.

We meet at the Museum on North Terrace in the city where we have a table booked for us each month at noon. There is no need to let anyone know you are coming, just turn up there will be a place for you. If any YL is visiting VK5 on the second Friday of the month, please come to the Museum at midday.

If you are to be in Adelaide at some other time of the month, please contact Jean VK5TSX, our state representative, or me, Christine VK5CTY QTHR in the Callbook and phone book: we can usually arrange for some of the YLs to go to town for lunch to meet you.

The VK5 Luncheon: Two of the regulars, Maria VK5BMT and Meg VK5YG

The CLARA Challenge continues

The CLARA Challenge has been extended so you now have till the end of March to catch those extra YLs to make up your forty contacts for the Challenge. The details of who to send your entry to were published in the previous edition of AR so do take advantage of the extension and join in the fun.

This is a different and interesting way to celebrate the forty years of CLARA's existence. Hope you have had fun whether you have used only the traditional HF and VHF modes or have tried out Echolink as well.

Are you managing the estate of a 'Silent key'?

Please save any QSLs for the National QSL collection, but first contact:

The Hon. Curator,
Ken Matchett VK3TL
on (03) 9728 5350
or email: wiaqslcollection@wia.org.au

Rare DX, special call-signs prefixes and suffixes, pictorials and pre-war QSLs are needed.

Let us save something for the history of amateur radio.

A significant SK for VK5 and for ALARA

On 25th January Denise VK5YL became an SK. She had had her licence for many years, firstly while she was living in Canberra where she was given the callsign VK1YL. After a break when she and her OM David VK5RN were in the US, Denise was given the callsign VK5YL when she returned to Australia and came home to her birthplace.

After ALARA was formed in 1975 in VK3, Denise was one of the first VK5 YLs to join, along with Myrna VK5YW and Lorraine VK5LM. Jenny VK5ANW followed these three as soon as she passed her exams, all joining in 1976.

Denise worked with and met many of our most prominent scientists when she was in Canberra but she changed track to become a mathematics teacher after she came home to VK5.

Some years later when Meg (who has had several callsigns), a teacher at the same school, passed her first amateur exam, Denise immediately signed her up as a member of ALARA. Denise was a regular attendee at the ALARA Birthday lunches and often joined others when there was a visiting YL in town.

She will be sadly missed by her friends in and out of ALARA

Coming events

April has two important DX Contests. The Thelma Souper Memorial Contest is on April 5th and 6th. The contest is an 80 metre contest only, run over the Saturday and the Sunday from 0800 – 1000 Zulu. You may use voice or CW and the aim is to make as many contacts with ZL YLs as possible during those hours.

There is a bonus station, ZL6YL, at random periods and on random frequencies. Contact with the bonus station works as a multiplier if you work it, as does any WARO member who has already worked at least 10 different stations.

Both YLs and OMs may work each other, one contact being permitted in each half hour period.

The details of scoring and application are listed in the ALARA Newsletter or on the web.

Do have a go. A number of the WARO YLs participate in the ALARA Contest, so let us reciprocate.

There is another contest for YLs on the same weekend (April 5th and 6th) if you are a CW operator, and a section of the same contest the following weekend for SSB operators. This is the DX to North America YL contest. All bands within the time span 1400 to 0200 Zulu are permitted. This is another interesting opportunity to meet YLs on air.

Lastly, please do not forget our AGM on the first Monday in May at 1000 Zulu on 80 metres. See you on the fifth.

Editor's Note: In the last issue, the ALARA column had a story on "Colossus loses the code breaking race". I have received a note from one of our UK readers (Rod (Nobby) Ashman G4JVJ) that Bletchley Park is in Buckinghamshire not Shropshire. Thanks for the note Rod.

ar

VK7 continued from page 36

have installed the new RFI Collinear antennas on both VK7RHT at Snug Tiers and VK7RAD at the Domain. The ATV Experimenter's nights on Wednesdays at 7:30 pm have seen some great subject matter presented over the holiday period, with many people coming up to the Domain and seeing what ATV on 444.25 MHz is all about. We were privileged to have Andreas IK1PMR and Claudia IK2LEO from Italy one night. It is great to see BPL kit starting to be removed from poles around Hobart and the bands returning to their usual state.

The REAST AGM was held on February 10 and it was standing room only in the clubrooms with about 40 people attending and I thank everyone for their support over the last six years. The office holders for 2008 are:

President: Clayton Reading VK7ZCR
Vice-President: Gavin O'Shea VK7HGO
Secretary: Danny Moss VK7HDM
Treasurer: Scott Thomson VK7FREK
Committee Members: Ben Short VK7BEN and John Slevin VK7HJS.

ar

Silent key

Maria Tadin VK7KMT

It is with deep regret that we announce the passing last week of Maria Tadin VK7KMT.

Maria was active a few years ago and is survived by Radovan, Stefan and Tash.

Our sympathy goes out to Maria's family.

Vale Maria.

Charles VK7PP

Denise Allison Robertson (nee Haslam) VK5YL

Denise was the first VK1YL then VK5YL, having gained her licence in 1956. She was an early member of the Australian Ladies' Amateur Radio Association and will be remembered by amateurs for her enthusiasm for our hobby and her proficiency as an operator. She also encouraged newcomers to amateur radio by giving them CW practice sessions, taking part in community events to promote amateur radio and by her enthusiasm. In the days before she held a licence she learnt Morse Code so that when her husband David VK5RN was overseas, she could receive messages from him.

In her younger days Denise played hockey at a state level, was a very good high board diver and was still swimming in Masters Games until a few years ago. Her B.Sc. in Mathematics and Physics from the University of Adelaide was followed later by M.Sc. in Mathematics in America. She and David worked at the Weapons Research Establishment until he transferred to Canberra, where she assisted Sir Mark Oliphant who was working in the field of Nuclear Physics. Later, when Sir Mark was Governor of S.A., they were guests at Government House on several occasions.

I was fortunate to be her colleague for about 20 years on the staff of an independent school where she was the senior Mathematics teacher. She was highly regarded by staff and students for her dedication to bringing her students to the highest possible competency in Mathematics. As a member of the Mathematics Association of S.A., she set and marked a special annual examination for advanced students. She also enjoyed being part of the extra-curricular music activities of the school. Many of her top students were also studying music at a high level. The two interests seem to go together. On retirement, she and David belonged to a Seniors orchestra/band and enjoyed providing music to various groups. School swimming sports days always saw Denise in the water for the staff/parents event.

Denise had a fund of anecdotes about her family and their pets - especially their large dogs! She was a loving and dedicated mother to her two sons. If she had one regret, it might have been that her husband David was so much taller than she, and installed radio equipment on a shelf too high for her to see or reach some of the controls!

Her many friends across Australia and overseas miss her cheerful, cheeky, entertaining conversations, and the twinkle in her eye as she related her experiences. You were a "young lady" in every sense of the word, Denise.

Meg Box VK5YG

Jim McLachlan VK5NB

James Allan McLachlan VK5NB passed away on Wednesday, 19 September, 2007, aged 70.

Jim had a number of hobbies, including vintage car restoration, amateur radio, and vintage radio restoration. At various times he held administrative positions in most of the clubs associated with his hobbies.

He was a member of the WIA, served two terms as State President, and also time as Vice-President. He ran the book sales for the Division, significantly contributing to the funds needed for a number of progressive projects, including the refurbishment of the Burley Griffin Building when it became Division headquarters.

At the time of his retirement, Jim was manager of the Radio Lines division of Telstra in Adelaide. Due to his professional experience with tower installation, he frequently led, or assisted with, the erection of many amateur towers in the state.

Jim joined the Adelaide Hills Amateur Radio Society in 2000 and immediately became a significant worker and leader in projects, later becoming Vice-President and, at the time of his death, President.

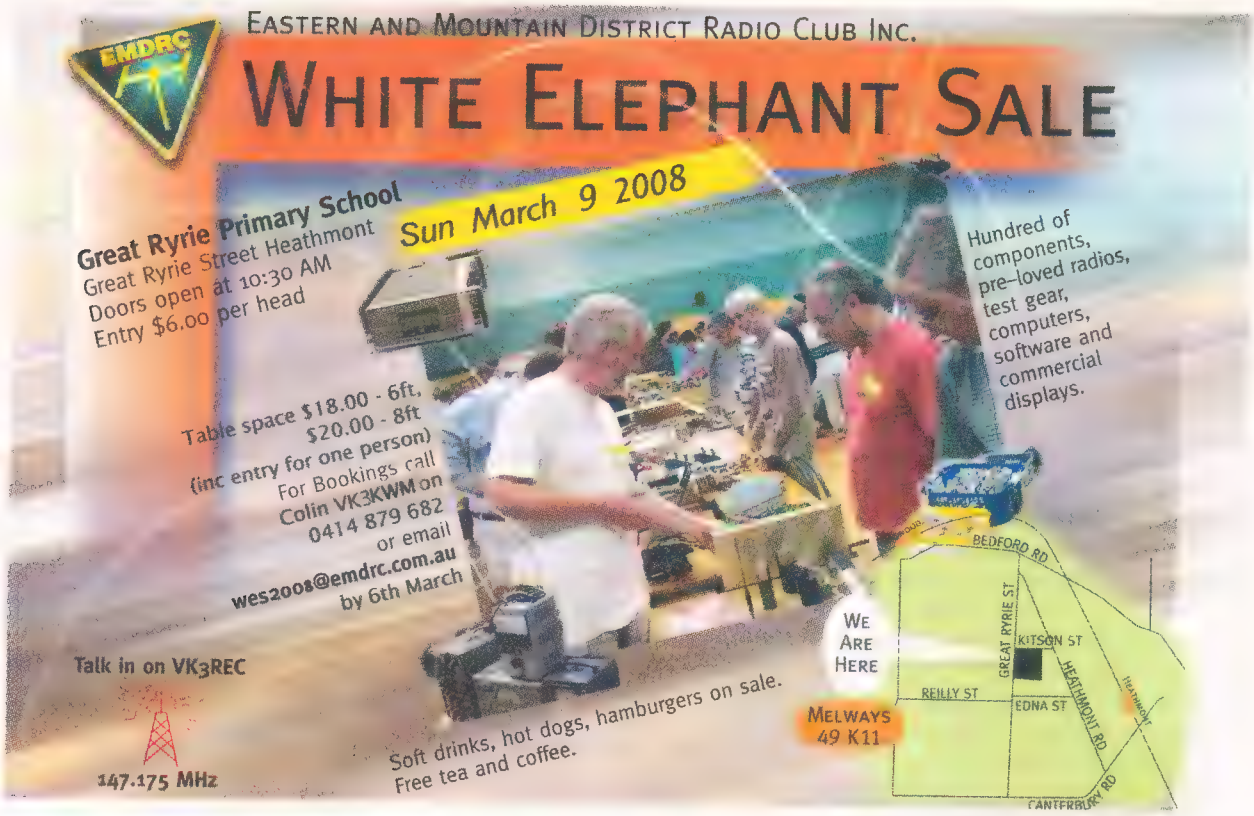
Geoff Voller G3JUL noted that, on his frequent visits to England, he was an honoured guest at meetings of the Echelford Amateur Radio Society, and the associated CW Appreciation Society. The latter had a weekly lunch meeting, where Jim's input was always very well received.

Rob Gurr VK5RG, Trevor Quick VK5ATQ, and Peter Holland from the Historical Radio Society of Australia, all recall Jim as a forward looking, progressive thinking leader of amateurs, and a very dedicated and talented restorer of older radio equipment. They described him as a happy person, who looked for a positive outcome from every event. The hard decisions were made, then on with discussion of what to do next.

Sincere 73 from us all.

Condolences to Jim's wife Heather, and the McLachlan family.

Contributed by John Elliott VK5EMI, with input from Rob Gurr VK5RG, Trevor Quick VK5ATQ, Peter Holland and Geoff Voller G3JUL.



TET-EMTRON

Antenna Manufacturers

New Tet-Emtron Vertical Range

- **All Aluminium with Stainless steel hardware.**
- **No adjustment needed to main antenna.**
- **Light.**
- **Free standing—no intrusive guy wires.**
- **1 kW PEP power rating.**
- **Can be ground mounted or elevated.**

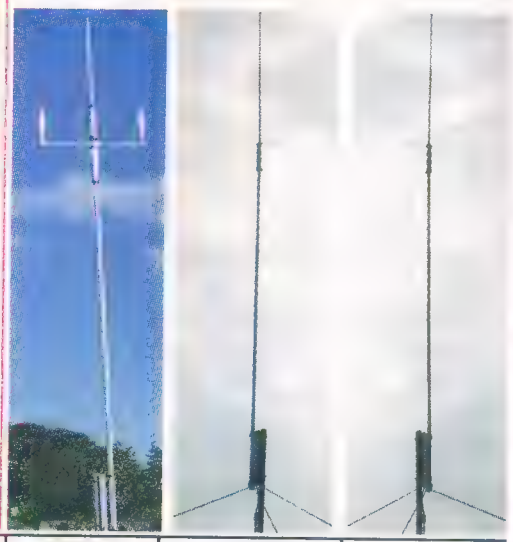
The new TET-Emtron Vertical range is designed with ease of use in mind. Tuning is done by the radials when the antenna is in its final position (where possible).The radials can either lay on the ground, be buried or hang from the elevated antenna. The antenna comes with a set of radials that has a resonant radial for each band. Further sets can be ordered from TET-Emtron if desired.

See the web site for more info and a complete dealer list.

New

Tet-Emtron Vertical Range

TEV-4 *TEV-3* *TEV-3 Warc*



Antenna	TEV-4	TEV-3	TEV-3 Warc
FREQUENCY	7, 14, 21, 28 MHz	14, 21, 28 MHz	10, 18, 24 MHz
ELEMENT HEIGHT	4090 mm	3800 mm	5025 mm
FEED IMPEDANCE	50 ohm	50 ohm	50 ohm
Max. RADIAL LENGTH	10.7 metres	5 metres	7.5 metres
SWR	1.5 or less	1.5 or less	1.5 or less
POWER RATING	1 kW	1 kW	1 kW

40 Blackburn Street
STRATFORD
Victoria 3862 AUSTRALIA

Ph: 61 3 5145 6179
Fax: 61 3 5145 6821
ABN: 87404541761

www.tet-emtron.com

Email: rawmar@hotkey.net.au

Phil Smeaton VK4BAA

Contest Calendar for March 2008 – May 2008

Mar	1/2	ARRL International DX Contest	SSB
	8/9	RSGB Commonwealth Contest	CW
	15/16	**John Moyle Field Day**	**CW/SSB/FM**
	22/24	BARTG RTTY Contest	RTTY
	15/16	Russian DX Contest	CW/SSB
	29/30	CQWW WPX Contest	SSB
April	5/6	SP DX Contest	CW/SSB
	5/6	EA WW RTTY Contest	RTTY
	12/13	Japan International DX Contest	CW
	12/13	Yuri Gagarin International Contest	CW
	19	Holy land DX Contest	CW/SSB
	19	TARA Skirmish Digital Prefix Contest	PSK
	20	YU DX Contest	CW/SSB
	26	**Harry Angel Sprint**	**CW/SSB**
	26/27	Helvetia Contest	CW/SSB
	26/27	SP DX RTTY Contest	RTTY
May	10/11	CQ-M International DX Contest	CW/SSB
	10	VK/Trans-Tasman 80 metres Phone Contest	SSB
	24/25	CQ WW WPX Contest	CW
	24	VK/Trans-Tasman 80 m CW Contest	CW

Welcome to this month's Contest Column

Commonwealth Contest – an update

Beru, otherwise known as the Commonwealth Contest, will be taking place on 8th and 9th March 2008. In keeping with the cricketing traditions presented for the first time in 2007, it is proposed to organise a Commonwealth Team Contest, to run in parallel with the normal Commonwealth Contest.

Steve VK6VZ, the Australian team organiser, advises that the new team competition rules limit team headcount to ten operators. Hence the team now looks like:

1. Kevin VK6LW (5335 pts)
2. Barry VK2BJ (5045 pts)
3. John VK4EMM (4860 pts)
4. Steve VK6VZ (3495 pts)
5. Mike VK6HD (3055 pts)
6. Alan VK6BN (2920 pts)
7. George VK4XY (2845 pts)
8. Les VK4BUI (2805 pts)
9. Keith VK4TT (2770 pts)
10. David VK2NU (2605 pts)

Reserves

1. Russ VK4XA (2585 pts)
2. Karl VK2KM (2690 pts)
3. Rob VK6HG (2020 pts)
4. Phil VK2ANU
5. Alan VK8AV

I am not in a position 'antenna wise' to make a bid for the Team this year, but rest assured, once I get myself sorted out I will be trying-out for a Team placement in 2009. The contest requires a slightly different approach to antennas and bonus/multiplier planning and it makes an interesting difference to be competing as part of a geographically widespread team. Why not have a go in the contest and try for a team slot for yourself?

CQWW WPX SSB Results

The results were issued a little late for the February AR and they may already be known to most, but they are worth including anyway as the stations

Callsign	Section	Score
VK3TZ	All Band	424,386
VK3KE	All Band	110,385
VK2BCQ	All Band	15,174
VK6DXI	40m	503,174
VK4EJ	Low Power, All Band, Single Op	548,723
VK2AEA	Low Power, All Band	149,962
VK4FJ	Low Power, All Band	40,698
VK3FM	Low Power, All Band	37,128
VK4XES	Low Power, All Band	29,795
VK2KRM	Low Power, All Band	2,370
VK4DMP	Low Power, 14	30,704
VK1KBN	Low Power, 14	4,251
VK4NEF	Low Power, All Band, Assisted	221,328
VK2KDP	Low Power, All Band, Assisted	29,939
VK6ANC	Multi-Op, Two Transmitter	4,526,434

concerned put in an excellent effort putting VK on the world stage.

It is great to see VK6ANC in the multi-operator category, reaping the rewards of all their hard work and planning of the antenna farm that they have spent a considerable time putting together. Contesting is evidently alive and kicking in WA and long may it continue.

RD Contest Results Typo

I recently received a letter from Gerald VK2HBG. Gerald advises that his callsign was incorrectly printed in the results of the RD contest last month asVK2BHG. Sorry Gerald! I have passed your letter on to the contest manager, Peter Harding VK4OD, so that amendments can be made as required.

CW – To Skim or Not to Skim

What on earth is skimming CW I hear you ask? I asked the same thing initially, but there is a new bit of software out there that tries to do just that.

CW Skimmer is a piece of software available at www.DXAtlas.com which may change the approach towards CW for some people. Rather like a band scope on some of the radios available on the market today but with the ability to identify signals and not just display their existence on a band, the software enables the operator to simultaneously monitor a wide selection of band for CW signals in pictorial format. Given sufficient noise-free environment and a computer able to number-crunch at the appropriate speed, CW Skimmer will concurrently display multiple callsigns and associated frequencies along with information sent by the sending station.

Linked to the radio audio outlet via the soundcard of your computer, the software listens in to the available bandwidth and displays anything that it can 'hear'. As with most software like this, a filter of some description prior to the software enhances readability greatly. Another facility is to click on the station of interest to move your radio's frequency to home-in accordingly. Searching for DX seems to be a point and click exercise – do we need VFOs anymore? Of course, the 'old fashioned' way will still be available, but the software is powerful enough to do most of the donkey work.

For example, using the software and configuring a SoftRock (Software Defined Radio hardware) to work off the first IF of a receiver, would enable a powerful method of displaying CW data in a format in a similar vein to that of a second operator looking for multiplier stations. Dependant upon QRM/QRN and signal strength, the software might easily become confused but with sufficient filtration it enables signals near the noise floor to be displayed and decoded.

So, how could the resultant data be utilised by contesting software? Maybe the software could take the information and produce a list of stations in a predefined order such as:

1. Double multipliers and multipliers
2. Longest distance
3. Strongest signals
4. Continent preference

Maybe it could be coupled to the radio in such a way that it could move up and down the bands looking for signals so that an alert could be flagged to the operator that a particular band is opening.

CW Skimmer is not free and a payment is required after an evaluation period has expired. Will it catch on? Possibly, within certain circles, but I have a feeling that most will not bother with it due to cost (not that it is particularly expensive) and the fact that for some at least, the dreaded computer has got in the way of direct human interaction with the radio once again.

The use of software such as this raises the question of 'Assisted' and 'Non-Assisted' categories of contest entries. If the computer is able to effectively be a second operator but without the physical presence of a human being, is the submitted log to be within the 'Assisted' or 'Non-Assisted' category? Does the software not act in a similar way to that of utilising Packet or other methodologies for gaining additional insight into alternative band activity and the locations of multipliers?

If 'Assisted' and 'Non-Assisted' categories are now to be blurred and software acts in a similar way to that of a second operator, I suspect that contest adjudicators are in for a hard time!

With software such as this coming onto the market, CW Contesting may well be a different game in the future. Some SO1R operators already view SO2R as an unfair advantage. For example, SO2R operators do a 72 hour contest (48 on radio1 and say 24 on radio2, listening to radio2 while radio1 is transmitting) while SO1R only does a 48 hour contest. SO2R is not for everyone, with very few having the physical, mental and concentration skills to do it. Maybe this software allows an alternative SO2R approach to be adopted, without the mental concentration aspect coming into play.

But where could this end? Could SO6R be a realistic possibility, with multiple radio/computer arrangements independently trawling the band for QSOs that earn the highest points after working the multipliers? How long will it be before the software calls the other station for us as well? Maybe we could set-up the station at the start of the contest; go to the pub and return later to see if we have 'won' the contest?

Will there be a last resort for those simply looking for the personal challenge in a competition? Spots, Skimmer etc. of course cannot be stopped or effectively policed simply for their obvious convenience.

We often hear that "technology is the name of the game" and it helps to maximize the score. For me at least, it is the pure personal challenge. Maybe, CW Skimmer allows the upper limit to be stretched a little bit more, raising the bar for us all? Maybe, it ultimately falls to the vagaries of the ionosphere to induce the element of challenge.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk2baa@wia.org.au. See you on the bands.

73 de VK4BAA Phil Smeaton

ar

Gridsquare Standings at 8 December 2007

144 MHz Terrestrial

VK2FLR	Mike	113
VK3NX	Charlie	106
VK2KU	Guy	102
VK3KAI	Peter	85
VK3HZ	David	79
VK2ZAB	Gordon	78 SSB
VK3PY	Chas	70 SSB
VK2KU	Guy	69 SSB
VK2DVZ	Ross	68 SSB
VK3CY	Des	68
VK2TK	John	62
VK3EK	Rob	62 SSB
VK7MO	Rex	61
VK3QM	David	58 SSB
VK2EI	Neil	57
VK3BJM	Barry	57 SSB
VK3BDL	Mike	51 SSB
VK3KAI	Peter	51 SSB
VK3ZLS	Les	51 SSB
VK3WRE	Ralph	50 SSB
VK2ZT	Steve	48 SSB
VK2KU	Guy	47 Digi
VK3CAT	Tony	46
VK3VG	Trevor	46 SSB
VK4TZL	Glenn	45
VK5BC	Brian	43 SSB
VK4CDI	Phil	41
VK7MO	Rex	41 SSB
VK3II	Jim	39
VK7MO	Rex	39 Digi
VK3II	Jim	38 SSB
VK3KAI	Peter	36 Digi
VK4CDI	Phil	36 SSB
VK2TK	John	35 SSB
VK4KZR	Rod	35
VK2KOL	Colin	34 SSB
VK3ZUX	Denis	33 SSB
VK6HK	Don	33
VK2AMS	Mark	32 SSB
VK3DMW	Ken	32
VK3ZYC	Jim	31
VK3VHF	Rhett	29 SSB
VK2KRR	Leigh	28 FM
VK3CJK	Chris	28 SSB
VK2EAH	Andy	27
VK2TK	John	27 Digi
VK1WJ	Waldis	26
VK2TG	Bob	26 SSB
VK3ACC	Gordon	26 SSB
VK5ACY	Bill	26 SSB
VK3BBB	Brian	25
VK5BC/p	Brian	25 SSB
ZL3TY	Bob	24
VK3TLW	Mark	23 SSB
VK3YB	Phil	23
VK4EME	Allan	23
VK1WJ	Waldis	22 Digi
VK3BG	Ed	22 SSB
VK3HV	George	21 SSB
VK3II	Jim	21 Digi
VK6KZ	Wally	20
VK3AL	Alan	18 SSB
VK3UDX	Geoff	17 SSB
VK4TJ	John	17 SSB
VK2EAH	Andy	16 SSB
VK3ECH	Rob	16 SSB
VK4CDI	Phil	16 Digi
VK4EME	Allan	16 Digi
VK6KZ/p	Wally	16
VK3ZYC	Jim	14 SSB
VK3VHF	Rhett	12 Digi
VK2EAH	Andy	11 Digi
VK2EI	Neil	11 Digi
VK2KOL	Colin	9 Digi
VK4EME	Allan	9 SSB
VK6DXI	Mirek	6
VK6HK	Don	6 Digi
VK1WJ	Waldis	5 SSB
VK1WJ	Waldis	5 CW
VK2ZT	Steve	4 Digi
VK4JAZ	Grant	2 FM
VK3QM	David	1 Digi

144 MHz EME

VK2KU	Guy	268
VK2KU	Guy	255 Digi
ZL3TY	Bob	252
VK3AXH	Ian	185 Digi
VK7MO	Rex	154 Digi
VK4CDI	Phil	122 Digi
VK2FLR	Mike	120
VK3CY	Des	70 CW
VK2AWD	Dave	52 Digi
VK2KU	Guy	39 CW
VK2KRR	Leigh	30
VK2ZT	Steve	26
VK3VHF	Rhett	20 Digi
VK3HZ*	David	19
VK3II	Jim	10 Digi
VK3NX	Charlie	5
VK4EME	Allan	4 Digi
VK2DVZ	Ross	2
VK3AXH	Ian	2 CW
VK3AXH	Ian	1 SSB

432 MHz Terrestrial

VK2ZAB	Gordon	57 SSB
VK3NX	Charlie	50
VK3PY	Chas	50 SSB
VK3QM	David	47 SSB
VK3ZLS	Les	40 SSB
VK2KU	Guy	38
VK3HZ	David	37
VK2KU	Guy	34 SSB
VK3BJM	Barry	34 SSB
VK3EK	Rob	34 SSB
VK2DVZ	Ross	32 SSB
VK3CY	Des	32
VK3KAI	Peter	30
VK3KAI	Peter	29 SSB
VK3BDL	Mike	28 SSB
VK3WRE	Ralph	28 SSB
VK5BC	Brian	21 SSB
VK3VG	Trevor	20 SSB
VK7MO	Rex	20
VK3UDX	Geoff	19 SSB
VK2TK	John	18
VK7MO	Rex	18 SSB
VK2TK	John	17 SSB
VK2ZT	Steve	17 SSB
VK3CAT	Tony	16
VK3BG	Ed	15 SSB
VK3TLW	Mark	15 SSB
VK3ZUX	Denis	15 SSB
VK4KZR	Rod	14
VK5BC/p	Brian	14 SSB
VK4CDI	Phil	13
VK4CDI	Phil	13 SSB
VK4TZL	Glenn	13
VK6KZ	Wally	13
VK2KOL	Colin	12 SSB
VK2KRR	Leigh	11 FM
VK3AL	Alan	10 SSB
VK3YB	Phil	10
VK2AMS	Mark	9 SSB
VK2TG	Bob	9 SSB
VK3BBB	Brian	9
VK3VHF	Rhett	9 SSB
VK3CJK	Chris	8 SSB
VK4TJ	John	8 SSB
VK6KZ/p	Wally	8
VK2EI	Neil	7 SSB
VK7MO	Rex	7 Digi
VK2FLR	Mike	6
VK3ECH	Rob	6 SSB
VK6DXI	Mirek	6
VK2KU	Guy	5 Digi
VK3HV	George	5 SSB
VK1WJ	Waldis	4 SSB
VK3DMW	Ken	4
VK3KAI	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK3ZYC	Jim	4 SSB
VK4EME	Allan	4 SSB
VK3VHF	Rhett	3 Digi
VK4CDI	Phil	3 Digi
VK2EAH	Andy	1 SSB
VK2KOL	Colin	1 Digi
VK2TK	John	1 Digi
VK4JAZ	Grant	1 FM

432 MHz EME

VK4KAZ	Allan	14 CW
VK7MO	Rex	10
VK4CDI	Phil	9 Digi
VK7MO	Rex	9 Digi
VK2SN	Sean	6 Digi
VK3NX	Charlie	5
VK3HZ	David	4
VK2KRR	Leigh	1
VK2ZT	Steve	1
VK3AXH	Ian	1 Digi
VK3VHF	Rhett	1 Digi

1296 MHz Terrestrial

VK3QM	David	39 SSB
VK3PY	Chas	38 SSB
VK3NX	Charlie	37
VK2ZAB	Gordon	29 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	25
VK2KU	Guy	22 SSB
VK3EK	Rob	20 SSB
VK3KAI	Peter	20
VK3KAI	Peter	19 SSB
VK3KWA	John	19
VK2DVZ	Ross	18 SSB
VK3WRE	Ralph	17 SSB
VK3BJM	Barry	16 SSB
VK3HZ	David	16
VK3BDL	Mike	14 SSB
VK3VG	Trevor	12 SSB
VK3BG	Ed	11 SSB
VK7MO	Rex	11 SSB
VK2TK	John	10 SSB
VK3UDX	Geoff	10 SSB
VK4KZR	Rod	10
VK2ZT	Steve	8 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK4TZL	Glenn	6
VK3ECH	Rob	5 SSB
VK3HV	George	5 SSB
VK3VHF	Rhett	5 SSB
VK3ZUX	Denis	5 SSB
VK3ZYC	Jim	5
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK2KRR	Leigh	4
VK3BVP	Shane	4
VK3YB	Phil	4
VK3ZYC	Jim	4 SSB
VK4CDI	Phil	4
VK6KZ	Wally	4
VK2KU	Guy	3 Digi
VK3BBB	Brian	3
VK4CDI	Phil	3 SSB
VK6DXI	Mirek	3
VK2FLR	Mike	2
VK3CJK	Chris	2 SSB
VK3CY	Des	2
VK3DMW	Ken	2
VK3KAI	Peter	2 Digi
VK3QM	David	2 Digi
VK2AMS	Mark	1 SSB
VK3ZYC	Jim	1 Digi
VK4CDI	Phil	1 Digi
VK5BC	Brian	1 SSB
VK7MO	Rex	1 Digi

1296 MHz EME

VK7MO	Rex	27
VK7MO	Rex	24 Digi

2.4 GHz Terrestrial

VK3NX	Charlie	14
VK3PY	Chas	14 SSB
VK3QM	David	14 SSB
VK3WRE	Ralph	10 SSB
VK3KAI	Peter	7 SSB
VK3EK	Rob	5 SSB
VK3HZ	David	5
VK3HV	George	4 SSB
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK3KAI	Peter	2 Digi
VK3VHF	Rhett	2 SSB
VK4KZR	Rod	2
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB
VK4TZL	Glenn	1

2.4 GHz EME

VK3NX	Charlie	17
VK7MO	Rex	9
VK7MO	Rex	7 Digi

3.4 GHz Terrestrial

VK3NX	Charlie	11
VK3QM	David	9 SSB
VK3WRE	Ralph	7 SSB
VK3KAI	Peter	6 SSB
VK3HV	George	4 SSB
VK6KZ	Wally	4
VK3EK	Rob	3 SSB

3.4 GHz EME

VK3NX	Charlie	5

5.7 GHz Terrestrial

VK3NX	Charlie	12
VK3WRE	Ralph	9 SSB
VK3QM	David	8 SSB
VK3KAI	Peter	7 SSB
VK6KZ	Wally	4
VK3BJM	Barry	2 SSB
VK3EK	Rob	2
VK3HV	George	2 SSB
VK3KAI	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK3ZUX	Denis	1 SSB

5.7 GHz EME

VK3NX	Charlie	11

10 GHz Terrestrial

VK3NX	Charlie	11
VK3QM	David	11 SSB
VK3KAI	Peter	9 SSB
VK3PY	Chas	9 SSB
VK3WRE	Ralph	9 SSB
VK6BHT	Neil	9 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	5
VK3HV	George	4 SSB
VK3HZ	David	4
VK3TLW	Mark	3 SSB
VK3ZYC	Jim	3 SSB
VK5ACY	Bill	3 SSB
VK2EI	Neil	2 SSB
VK3BJM	Barry	2 SSB
VK3DMW	Ken	2
VK3ZUX	Denis	2 SSB
VK7MO	Rex	2
VK3BG	Ed	1 SSB
VK4KZR	Rod	1
VK4TZL	Glenn	1

10 GHz EME

VK3NX	Charlie	11

24 GHz

VK6BHT	Neil	3 SSB
VK2EI	Neil	2 SSB
VK3NX	Charlie	2
VK6KZ	Wally	2

474 THz

VK3CJK	Chris	3
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7HAH	Ben	1 Digi
VK7TW	Justin	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at www.vhfdx.radiocorner.net - click on Gridsquares.

Next update of this table will close on or about 21 March 2008.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

VHF/UHF – an expanding world

David Smith VK3HZ
vk3hz@wia.org.au

Weak signal

David Smith VK3HZ

Following the bumper Christmas period, things have quietened down considerably. As expected, the last of the 2 m Es activity occurred in late January and the tropo activity has been nothing remarkable.

On the morning of January 18th, 2 m opened via Es over a relatively short path between VK5/3 and VK1/2. Between 0045 Z and 0120 Z, Garry VK5ZK in Goolwa worked VK1DJA (5/9), VK1OD (5/9), VK2DJ (5/8), VK2KOL (5/9), VK2DVZ (5/2) VK2ZT (5/2), VK2DJ (5/5) and VK2MJW (5/9). Colin VK5DK in Mt Gambier worked VK2ZT (5/7) and VK2DVZ (5/7). Just across the border in Nhill, Bill VK3LY worked VK2DVZ (5/7) and VK2KOL (5/9).

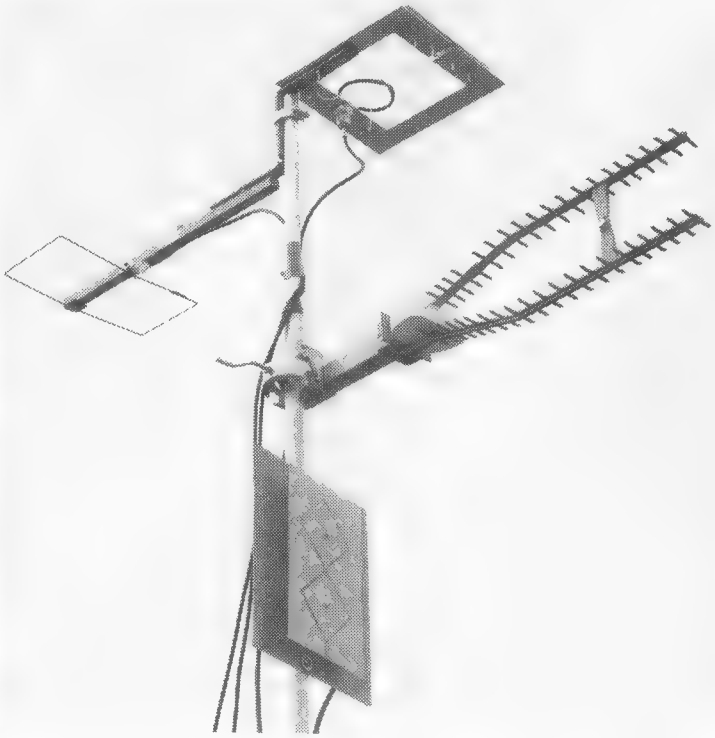
The following day (January 19th) saw about the last of the 2 m Es openings. At 0235Z, ZL1BT reported hearing the Newcastle Channel 5A sound up to S7. However, conditions were extremely choppy with signal in and out on about a 10 minute cycle. At 0300 Z, he worked Steve VK2ZT (5/7). By 0400 Z, conditions had picked up with Ch 5A now S9+ and Sydney FM stations covering the dial – still very choppy though. VK2ZT worked ZL1CN (5/3) and ZL1AKW (5/2). VK2KOL worked ZL1BT (5/7). VK2FZ worked ZL1CN (5/3) and ZL1BT with signals peaking to 5/9+20 briefly. By 0430 Z, the opening had gone.

The morning of January 27th produced a good tropo opening across the south of the country. At 2100 Z, Phil VK5AKK in Adelaide reported hearing the Perth VK6RPH beacons on both 2 m and 70 cm. VK6RST near Albany was also present on 2 m. At 2200 Z, VK5AKK worked Don VK6HK on 2 m and 70 cm (5/1). Don reported hearing the Mt Gambier VK5RSE 2 m beacon at 5/3. He then worked Bill VK3LY and Kevin VK3WN in Ballarat (5/2). Kevin also worked Phil VK6ZKO (5/1). VK6JR was hearing both the Adelaide and Mt Gambier 2 m beacons. VK6HK reported hearing VK3HZ in Melbourne, but no contact was made. Ian VK3AXH in Ballarat worked VK6HK (5/3), VK6ZKO (5/3) and VK6JR (5/2). Murphy had inflicted a power outage on Phil VK5AKK. When the power came back on, he was able to call in after the WIA broadcast on the Mandurah repeater. He also reported hearing the Bunbury VK6RBU 2 m beacon (5/2). Peter VK5ZLX reported that, during the morning, he had heard the VK7RAE, VK3RGL, VK5RSE, VK5VF, VK6REP, VK6RST, VK6RBU and VK6REP beacons, all at the same time.

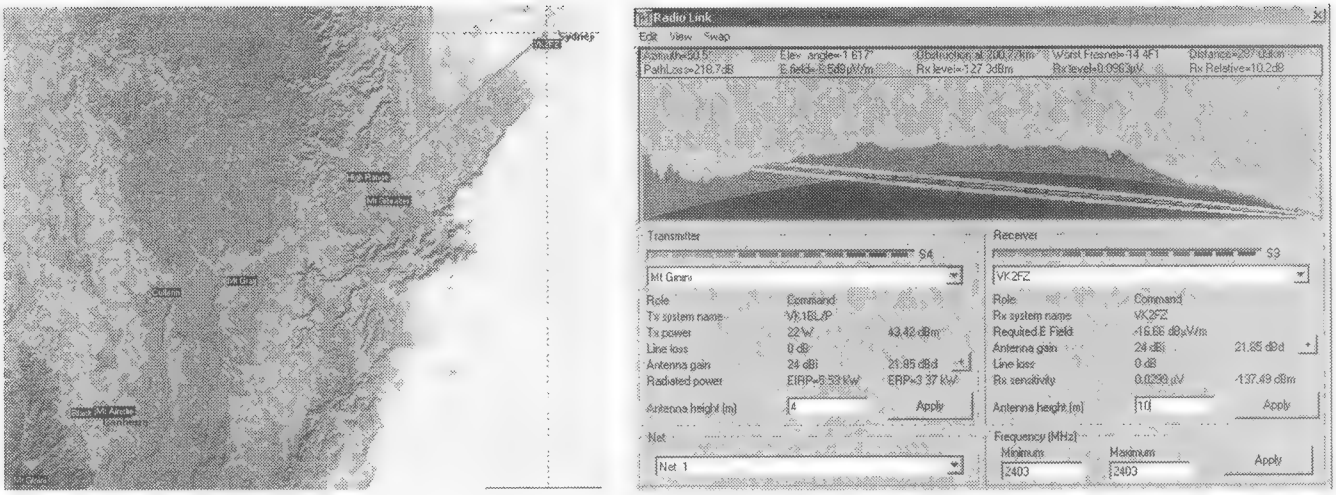
Rover Activity

During the Spring VHF/UHF Field Day, Mike VK3UBM did some roving work, mainly to give other field stations some extra activity. He sent in photos of his vehicle at one of his operating locations – outside the Shelford CFA shed in QF12 (watch that paintwork, Mike!).

His equipment consists of an FT-817



Mike VK3UBM and his roving equipment



Screen images from the "Radio Mobile" software path analysis for the path between VK1BL/p and VK2FZ on 2.4GHz

on 6 m, 2 m, and 70 cm plus MiniKits transverters for 23 cm and 13 cm. Of note is his unusual antenna setup (see photo). From the top, he has a 2 m "Squalo", 70 cm Loop, 13 cm Hills commercial "V-Yagi" WiFi antenna and 23 cm double-quad antenna.

New VK1 Microwave Record

Recently, there has been a surge of interest in the microwave bands in the Canberra area. Ted VK1BL, ably assisted by Owen VK1OD, was keen to see what they could do on 2.4 GHz.

Owen undertook some analysis of the path between Mt Ginini, 43 km southwest of Canberra, and the QTH of Adrian VK2FZ in inner Sydney. Using RadioMobile (an amazingly comprehensive radio-link analysis software package that, even more amazingly, is free), he found that there was a viable path between the two sites, 287 km apart. The path was far from line-of-sight, but well within tropo-scatter range. Signal strength predictions were S3-4.

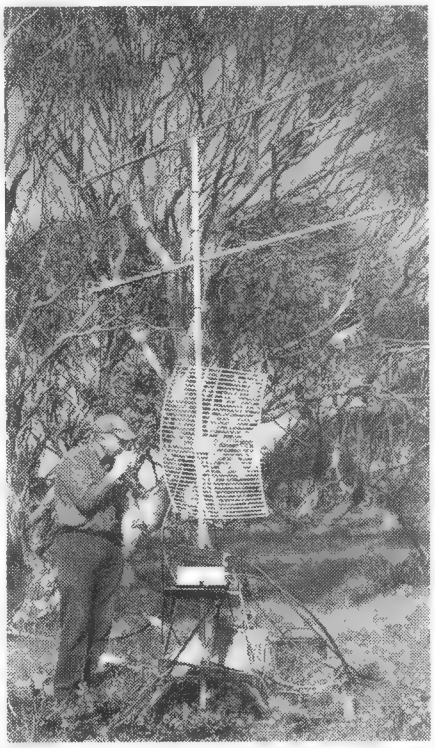
On the morning of November 25th, Ted and Owen headed up to Mt Ginini, which, at 1760 m ASL, provides a good vantage for a northeast path to Sydney, though growing trees are becoming a problem for microwave operation. The weather was clear and still, in contrast to Canberra which was shrouded in cloud.

A voice contact was made with both Adrian and Ted giving 5/1-2 reports - slightly below that predicted by RadioMobile. Signals were affected by a quite rapid and deep fade, and disappeared into the noise at times - characteristic of tropo scatter. Signals received at Mt Ginini often had a burble superimposed, much faster than expected from aircraft or mobile flutter. There was no sign of aircraft enhancement of the path.

The QSO established a new VK1 record distance (286.6 km) for the 13 cm band.

Plans are being developed for attempts over a much longer path into VK3, and the possibility of longer paths to the mid north coast of NSW is also promising. Contacts on higher bands, especially 3.3 GHz and 10 GHz are also being contemplated by an active group of microwave enthusiasts in the region of Canberra.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au.



Ted VK1BL on Mt Ginini

Digital DX Modes

Rex Moncur VK7MO

Welcome to Doug VK4ADC, who has been joining in the 2 metre FSK441 Meteor Scatter sessions. While still to complete a QSO, he has had copy both ways from VK3 and VK7.

Waldis VK1WJ has been exploring 20 watt meteor scatter on 2 metres while his linear is off for repair. While the rate of contacts is much lower he is still completing one or two contacts each Saturday and Sunday morning over distances from 900 to 1400 km.

As a result of concerns that pings might be overridden by other transmitting stations in the vicinity a test was conducted to establish how many common pings occur between John VK4JMC and Wayne VK4WS transmitting, and Bill VK2ZZF, Gavin VK3HY and Rex VK7MO receiving. To separate the signals, John transmitted a

shorthand 73 tone (2205 Hz) and Wayne an R26 tone (882 Hz). Both stations are at similar distances but are around 70 km apart. It was found that there was no correlation between pings in a half hour test during which over 50 pings were received. The test supports the conclusion of earlier tests where Adrian VK2FZ and Mike VK2FLR, only 1 km or so apart, transmitted and only a small proportion of pings were common. These results suggest that for short pings, the meteor footprint on two metres is very small and only a few km across. For long burns, the footprint can be hundreds of km where stations several hundred km apart have reported the same burns. The trick with burns is that while two stations may overlap, one or other will start just prior to or finish just after the other and the interference affect that causes burns to oscillate in signal level will not occur at the same time for both. Thus when you receive a burn it is often useful to manually click across the burn on the spectrum display to see if you can decode more than one station.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au.

The Magic Band – 6 m DX

Brian Cleland – VK5BC

January was a great month on 6 m with very few days when the band was not open somewhere in VK/ZL. Many days all states could be worked with the band open all day and into the evening. Early February things started to quieten down but some openings still occurring for those still monitoring the band with the 11th February being another exceptional day. Paul A35RK continued to regularly work into VK/ZL with some other interesting contacts made to Malaysia, Guam, Indonesia and Japan.

John VK4FNQ reports that the band opened most days to Far North Queensland with the 18th, 19th and 20th January being particularly good days when most beacons in VK, ZL and FK8 were heard and most states and ZL worked. Brian VK5BC reports good conditions into VK5 on most days of January with good VK3 openings on the 8th and 16th and the MUF extending to 2 m on many occasions.

Paul A35RK was again very active during January and it was surprising how often he could be heard in VK. He was able to work into VK/ZL on 15 days during December and 16 days during January during which time he completed many CW and SSB contacts, working a total of 56 stations on CW and 150 on SSB. During January Paul was able to work his 2nd VK6, Wayne VK6JR on CW. Table 1 below summarises Paul's December/January contacts up to and including the 31st January. Paul certainly added a new dimension to the summer season and a big thanks from all VK/ZL 6 m operators for regularly monitoring the band and being available for contacts.

A good opening from the Perth area occurred on 16th January to Indonesia. Peter VK6KXW reports, "Tonight was interesting (16/1/08), I had VK8RAS 5x5, VK6RSX 5x5 to 9 at 1214z with TV videos being heard from north on 48.240 MHz, multiple carriers mainly Sempah which was the strongest at S3/5 but no 9M2 audio on 53.740 MHz, 55.250 MHz multiple carriers at –24 dBm. At no time did I hear or see on the waterfall 49.750 video carriers. VK2/SWL was at the time on the logger and in phone contact with Tony Mann, both tracking the MUF up, they were looking for 88.9 Singapore FM. While calling north, Wayne VK6JR came back to me on 50.110 (he is 200 km south of me). Not sure whether it was backscatter or direct, I belted outside to Armstrong the 3-el around. He came back to me again and some one else QRZed me. Fell off the chair, as it was YB1EHR in Bogor Java. So, Armstrong the flaming aerial again back up north and worked Chris, me 5x3 him 4x3. Equipment this end modest, 3-el Yagi, TS-2000 100W. Signals were USB on 50.110, 2x Es, 1,800 miles, no distortion /Doppler, and slow QSB. YB1EHR was also worked by several Perth stations including VK6RO, VK6IQ, VK6ZKO, VK6HK and VK6JR near Bunbury.

On 20th January, Mike VK2BZE heard the Guam AH2G beacon and was able to contact Joel KG6DX via Skype. Joel immediately came on air and completed a contact with Gerry VK2APG, but unfortunately Mike missed out. The Guam beacon was also heard on the 4th February by Russell VK4BEG, John VK4FNQ and Glenn VK7AB.

After several days where indicators from the north suggest that JA contacts may be possible. Finally Steve VK3SIX worked JR6EXN on 31st January who was also heard in Adelaide by Dave VK5/SWL. Garry VK5ZK reported hearing the JR6YAG beacon around the same time.

On 2nd February some interesting propagation occurred to Malaysia with John 9M6XMO in Kota Kinabalu being worked by Russell VK4BEG, Kevin VK4BKP Dale VK4SIX and John VK4FNQ all in far north Queensland

AREA	CONTACTS CW	CALLSIGNS CW	CONTACTS SSB	CALLSIGNS SSB	
VK1			3	2	
VK2	33	13	85	48	
VK3	13	9	37	24	
VK4	25	15	48	35	
VK5	12	3	26	13	
VK6	2	2			VK6JJ, VK6JR
VK7	3	3	3	3	
VK8			2	1	VK8MS
VK9	1	1	2	2	VK9NS CW&SSB VK9ZLH SSB
VK	89	46	206	128	
ZL1	1	1	4	4	
ZL2	2	2	8	4	
ZL3	15	5	15	10	
ZL4	1	1	4	2	
ZL	19	9	31	20	
FK8			1	1	FK1TK
3D2	1	1	2	1	2D2AG/P

Table 1

and Steve VK3OT in western Victoria. On the same day Steve heard 9M2IDJ who was worked by Mark VK8MS in Darwin. 9M6XRO was again worked by John VK4TL on the 4th February

The V73SIX beacon was reported as being heard John by VK4FNQ on 28th January and by Kevin VK4BKP on 4th February. Paul A35RK also reported the beacon on the 3rd February.

Jim VK9NS on Norfolk Island was also active in late January and worked many VK2, 3 and 4, and ZLs. Jim also worked Paul A35RK.

The FK8SIX beacon continued to be heard in most states throughout January but the only active station heard or worked was Michele FK8GX who was worked by Wayne VK4WS, Gary VK4ABW, Joe VK4TU and Steve VK3SIX. He was also heard by Brian VK5BC.

Meanwhile Joe VK7JG has had success working EME into Europe. Joe reports as follows:

"Worked Mick W1JJ on 27 November then Lance W7GJ requested a sked. We completed before the moon cleared the horizon on 29th November 2007. Since then on 1st December worked MM0AMW at -27. Then on the 26 Dec special event station FP0FRG at -30, the actual station was Gerard PE1BTX. I can work Gerard whenever he is active; he often gives me a SWL report when I am working other stations. Have a look at his WEB site you will be amazed at his equipment. On 26th Jan worked Ken G4IGO using my AX prefix for Australia Day. Also worked for the second time GM4WJA. John runs 600 W to a 6-el Yagi with no elevation. I also tried with EA3AKY (Josep), I decoded him several times however due to his local noise we did not complete the contact." Well done Joe.

Conditions have quietened a little in early February but good openings have occurred on the 9th and 11th. On 11th February, the band was open most of the day to all areas of VK and ZL with excellent conditions between VK5 to ZL and VK6. Conditions also extended from ZL to VK6 with John VK6JJ, Graham VK6RO, working ZL2TPY, ZL3JT, and ZL3NW and ZL3ADT.

Please send any 6 m information to Brian VK5BC at bcleland@picknowl.com.au.

ar

Over to you

On-air behaviour

A matter that has been concerning me for several months is the anecdotal evidence of degradation of on-air operating standards and etiquette ESPECIALLY ON REPEATERS. Listening to THOSE local to my QTH, and the HF bands, I am disappointed at the STANDARDS. In particular, swearing and what some may deem as inappropriate blasphemous language. I am neither a prude nor a religious crank. I can swear and let off steam and frustration with the best of you. I find it offensive however to have to listen to fellow amateurs swearing, and using inappropriate language on-air.

For instance, I have an impressionable teenage daughter that I would rather not HAVE hear such language and associated conversations. Have users of such language considered the impression of our hobby that this type of behaviour may leave with non amateurs listening to such communications?

I urge all amateurs to read and follow the Amateur's Code, by Paul M Segal W9EEA.

(Editor: Bruce included the code here. Interested readers can find the Code in the WIA Callbook or on the Internet.)

Despite being written in 1928, the philosophy behind this code is, in my view, still applicable today. To think otherwise is tantamount to suggesting that the Magna Carta, written in 1215 and that underpins such things as the Australian, United Kingdom and US constitutions along with the latter's Bill of Rights, is no longer relevant due to its age.

Some months ago I heard a well known amateur and generally nice guy, from the south-west of Victoria swearing during a QSO through the Geelong two metre repeater and using language that some may say was 'taking the Lord's name in vein'. Matters of politics were also mentioned. He was challenged by an unidentified station about the appropriateness of his language and reminded of the regulations under which radio amateurs operate. The identified amateur concerned then spent the next 10 or so minutes trying to defend himself.

I recently enquired to the ACMA about this matter and received this response:

"Section 6 of the LCD covers broadly the use of an amateur station.

Amateur radio is primarily about self training in radio communications and technical investigations into radio communications. However it also provides for 'intercommunications'. Whilst most 'intercommunications' between amateurs is expected to relate to radio communications matters, intercommunications about other matters, such as motor racing, the weather, the dog, cooking, gardening, the family's health, red wine, religion and politics etc is not precluded.

The use of amateur radio to 'broadcast' information about those non radio communications matters is not permitted. Just what is permitted or not permitted needs to be considered on a case by case basis. The line between casual intercommunications about religion (not precluded) and use of amateur radio to broadcast a religious sermon or read texts from the Bible or Koran (not permitted) is sometimes very fine.

The use of offensive language is not specifically an offence under the Amateur LCD or for that matter the Radio Communications Act 1992. These matters are dealt with under conditions imposed by subsection 108 (2) (d) of the Act (seriously alarmed, seriously affronted or harassment etc)."

Regardless of what the current regulations specifically state, I do not wish to be exposed or to have family, friends or casual listeners to the amateur bands exposed to such conversation, . I hear enough of it on the euphemistically called adult time slot television programs. I do not wish to hear, nor wish others to hear, such base language and conversation amongst a group of people that in the main considers themselves to be educated. Before someone reminds me that if I do not like what I hear, I can switch off or tune to another frequency, think about the effects of bad on-air behaviour on the long term viability of our hobby.

Amateur radio used to be a place where one can have a good conversation with worthwhile people. If one wishes to participate in gutter-style conversation on air, there is another radio service perhaps better suited for such persons. I would rather see standards remain high than degenerate into mediocrity.

Bruce R Kendall VK3WL

AMSAT

Bill Magnussen VK3JT

Important announcement

I have left the title box largely unaltered this month but keep your eyes and ears open. There will be changes shortly to the timing and format of the AMSAT-AUSTRALIA monthly nets. Tests are underway as we speak and details of new arrangements should appear in the next column. Paul VK2TXT of the OZsat group has been working on a new net meeting arrangement more suitable to both groups. The AMSAT-VK group will join forces with the OZsat group when the new arrangements are up and running. At this stage it looks like the HF net will remain as is. The new net will involve both VHF repeater linking and internet via Echolink. I hope to be able to publish full details in the April issue.

AO-16 back in service

The following message on the AMSAT-BB heralded in the return of AO-16 after a long absence. Over to Drew, KO4MA for the details.

Since AO-16 was recovered approximately 6 months ago, the command team has attempted to reload the satellite software almost a dozen times without success. Subsequently a series of memory tests were performed which points towards a hardware failure which prevents restarting the spacecraft software successfully. This team included Bruce Rahn WB9ANQ and Jim White WD0E advising Mark Hammond N8MH as the primary groundstation. Mark put in many early hours during the multiple reloads and test sessions, with Bruce, Jim, and others advising. Thank you to all involved for your hard work. After the conclusion that the spacecraft computer system was damaged and as discussions about decommissioning were taking place, Jim recalled a series of low level commands included in the spacecraft design by Tom Clark K3IO during construction. One of these commands allows an uplink receiver to be directly tied to a downlink transmitter. The twist is that the uplink is regular FM but the downlink via the BPSK transmitter is DSB (Double Sideband). Mark placed the satellite in this mode early (this) week and some testing was undertaken.

The satellite hears VERY well, and the reduced bandwidth by using either USB or LSB on the groundstation receiver allows for a very robust downlink. Tuning the downlink is just like on a linear transponder, meaning it is tight and with fast Doppler. Uplink tuning is not required, just as with the FM mode V/U satellites. QSOs were made between N8MH, WD4ASW, KO4MA, K5QXJ, and WA6FWF. My personal observations include being able to access and hear the satellite within one degree of the horizon, much lower than any other current bird for my QTH. This should be an easy satellite with omni antennas and a 70 cm preamp. With that explanation, I'm happy to open the satellite to general use on voice for a test period. Please submit reports either to the -bb or to ao16@amsat.org. The uplink is 145.920 FM, and the downlink is 437.026 SSB +/- Doppler shift. Please restrict your uplink power to a reasonable level, and do not transmit without being able to hear the downlink. All the general single-channel guidelines apply. Enjoy this bird's new life!

Thanks to Drew KO4MA, for the above information.

I can verify the ease of operation of this bird. It only requires a watt or two to access it on two metres and the downlink is strong throughout each pass. I am using my old, trusted auto-track system with WiSP controlling a Kansas City Tracker and a KenPro rotator. I can regularly quiet the receiver with just 1watt at AOS distances of 3000+ km. AO-16's footprint is wide enough to allow Perth to ZL contacts.

Operators have been delighted to witness contacts between Murray ZL3MH and Ron VK6AKI. They have a mutual window of some minutes when the orbit takes AO-16 over Adelaide. The double sideband downlink transmission is an interesting aside. The carrier suppression is more than enough but still allows you to hear a weak 'carrier' when the satellite is active. This is a very handy and welcome aid to tuning the signals. The Doppler-change can be quite severe in the middle of an overhead pass.

What do you need to come and join the fun on AO-16?

My satellite station has been a "work-in-progress" since Oscar-1 was launched in 1961. So it is not surprising that I find myself with a "high-end" antenna system: full auto-track, long switchable polarity CP Yagis with preamps mounted upstairs and high quality co-ax cable. After so many years of continual improvement you would expect something like that. But what about newcomers? What would be a minimum setup to allow you to work AO-16 or most of the other current LEO satellites?

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. Contact Graham if you wish to be placed on a mailing list for breaking news and net reminders. As a forum for members AMSAT-VK operates two monthly nets.

AMSAT-Australia Echolink Net

(see first paragraph of column)

The "Echolink" net meets on the second Sunday of each month. Anyone with an interest in Amateur Radio Satellites is welcome to join the net. Graham VK5AGR acts as net controller. The net starts at 0500 UTC during summer time periods and 0600 UTC during winter standard time periods. Connect to the AMSAT conference server on Echolink a few minutes before these times.

AMSAT-Australia HF net

(see first paragraph of column)

The HF net meets informally on the second Sunday of each month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900 UTC. Start listening 15 minutes before these times.

All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK
9 Homer Rd
Clarence Park SA 5034

Graham's e-mail address is:

vk5agr@amsat.org

For the moment let us just consider AO-16. The first thing to keep in mind is that it has a very sensitive receiver and for the most part it is operating in a noise-free environment. It takes very little power from your station to fully quiet the FM uplink receiver. Many postings on the AMSAT-BB suggest that at times even 10 watts is enough to overload it. Most operators will be able to generate 10 watts of FM on the 2 metre uplink frequency of 145.920 MHz. My own experience has shown that 10 watts FM into a ground plane antenna up in the clear is enough to make contacts. There will be times when the satellite's tumbling fades will make your signal QSB into the noise but you can still make contacts. There will be times when the bird is almost overhead that a hand-held and rubber duckie will suffice for the uplink but do not bother trying when the satellite is low on your horizon.

The down link is a little more difficult for several reasons. One, AO-16 is not a high power device. The signal on the ground is weak like all amateur radio satellites. We are not listening for the local repeater, and we have to contend with electrical noise and other interference. When AO-16 rises above the horizon it is about 3000 km away. Many stations report some worthwhile results with a simple ground plane but they would all acknowledge that a good pre-amp mounted at the feed point of the GP makes all the difference. A common cause of most difficulties that newcomers experience is the failure to realise the importance of this last point. It is stressed over and over in all articles written on getting started in satellite communications but still the prevailing attitude seems to be "Okay but I'll do that later". That is a real pity. 'Later' will not cut the mustard today and it almost certainly relegates your best efforts to mediocrity. The simple addition of a good low noise pre-amp at the feed point of the antenna can and will make all the difference. There – I have said it twice, I will leave it at that. I would call such a setup the minimum for any kind of encouraging results. No point in putting together a station if you are going to be disappointed with the results.

The second point in regard to operating AO-16 is that the downlink mode is not FM but double sideband (DSB). Essentially that is similar to AM but with the carrier very much suppressed. Do not try to receive it on an AM receiver though. You will be very disappointed. You will need an SSB receiver switched to either USB or LSB, does not matter which. Newcomers sometimes find Doppler shift rather mystifying. Get used to it. It is a fact of life for all satellite operators. It is an artefact of the satellite's motion relative to you and all other stations using the satellite at the same time. It can be easy to cope with or sometimes quite daunting. It is related to frequency and changes in frequency.

The FM uplink frequency in the case of AO-16 does not need to be altered during a pass. Set it and forget it. The downlink is another story. SSB is sensitive to tuning errors and 70 cm means that Doppler shift can vary as much as +/- 9 kHz on an overhead pass. Early and late in the pass it is easy to keep signals in tune but towards the middle of each pass when the bird is closest to you, you will find your hand on the dial making continual adjustments to keep your own and everybody else's signals in tune. This comes easy with practice. These days there are a number of fancy ways of totally automating the tuning of both uplink and downlink but we are talking minimal stations here so the newcomer will need to cope with the Doppler variation by hand tuning. The (nominal) downlink frequency is 437.025 MHz. When you first hear the signal, it could be somewhere in the vicinity of 437.034 MHz. It will slowly fall, requiring you to tune lower as the pass proceeds. As the satellite comes closer you will notice the rate of correction needs to be increased until as it goes overhead, the frequency will be close to nominal and you are tuning the dial quite rapidly to keep things in line. As the satellite moves away you will need to tune still lower until as it goes out over your horizon your dial could read somewhere around 437.017 MHz. Now if all that sounds complicated – it is not really. Come on, try it. Start by listening (always a good move). Get a tracking program and learn how to use it. Get used to the feel of the downlink. Practice tuning for Doppler correction. It is easy after a while.

When you gain confidence try making a call. The satellite radio system is full duplex. That is, you can hear yourself on the downlink while you are talking. You can tell if you are on frequency. You do not need to "switch" from Tx to Rx, leave the receiver run all the time and just grab the microphone when you want to call. You should hear yourself being re-transmitted from the bird. I find good quality headphones a useful accessory for pretty well all voice satellite work.

It will also help to physically separate the Tx and Rx antennas by several metres if you can. Again – there are fancy ways of filtering out any unwanted break-through but this is a minimal station we are considering and the problem is not critical. You will notice that the up and down frequencies are not harmonically related. It is designed that way. Duplex operation would be quite impossible if they were. So – when you look at it, getting going on AO-16 will be within the grasp of many amateurs regardless of experience or budget. Who knows – you might even get the bug and still be working the birds in 40 years time!

AO-51 still performing well

While we are on the subject of LEOs, at the time of writing the very favourable eclipse situation has allowed AO-51's "S" band downlink to be activated along with the more usual "U" mode downlink. For those unfamiliar with this terminology, read "S" band to mean 13 cm or around 2.4 GHz and "U" band to mean the 70 cm band. Reports have been coming in of good signals on the "S" band frequency. This would be a good time to get out the HEO equipment and dust it off in preparation for P3E.

The first thing you will notice is the rather extreme movement in the Doppler shift, particularly near the middle of each pass. With FM it is (sort-of) manageable but the new HEOs will probably exploit the many advantages of "S" band by using SSB most of the time. At 2.4 GHz, automatic Doppler correction will be pretty well essential for success over much of the HEO orbit and even when the bird is right out around apogee it will be a great advantage.

Now is the time to get familiar with this technique. The 'ante' has been 'up-ed' in terms of the original requirements for Doppler correction on the early digital satellites but the technology has moved on from those heady days. There is plenty of literature about and the hardware is simple enough once you get your feet wet. Follow the links on the AMSAT-NA web site and all will be revealed!

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Amateur Radio INDEX 2007

Don Jackson VK3DBB

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• TS-120S HF 100W KENWOOD SSB transceiver, S/N 0051303, $380, ph. 0404 224 412, Bill Macutkiewicz, waclawm@hotmail.com

WANTED NSW

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• Operators manual or copy for Telecheck and Marker Generator. Model 1323A, manufactured by Cossor Instruments, London. Will meet all costs. John Bennett, VK2SIG, RSARS 3292, QTHR, email: macben2@bigpond.com

FOR SALE VIC

• HALLICRAFTERS SR-150 transceiver. Great collectors item. Tx ok Rx has minor fault. Otherwise in v/good cond. Complete with AC pwr supply. Best Offer. Contact Ian VK3AQU 03 5751 1631 or 0418 579 422

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• One DIAMOND CP6 multiband vertical antenna suitable for 6, 10, 15, 20, 40 barefoot and 80m with a tuner. Free standing (no guys) with 6 trapped radials, overall length 4.6 metres, weight 4.9 Kg. Comes with installation instructions. No corrosion and in new condition. $400 VK4RA QTHR 07 3711 5750 AH.

WANTED QLD

• Copies of owner's manuals, circuits if possible, MICROLOG air-1 CW module, YAESU model FC-700 antenna tower. Brad Booth VK4CDL,48 Gregory Street Cardwell 4849, bradtimmy@hotmail.com

FOR SALE SA

• Still available VK5JST: Antenna Analyser kits. [see AR article May 2006] Build yourself an extremely useful item for your shack, and improve your HF antenna efficiency. For more details see www.scarc.org.au; contact SCARC PO Box 333 Morphett Vale SA 5162, or email: kits@scarc.org.au

WANTED SA

• Matched pair of 3-500Z tubes; prefer EIMAC or AMPEREX NOS or low hours known good / full output tubes. Would also consider single non-matched tubes. Wanted as spares to keep my old KENWOOD TL-922 linear amplifier serviceable. Contact Leigh, VK5KLT, QTHR, Phone: 08 8367 0303 or e-mail: leigh.turner@ieee.org

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Over to you

80 m whip

I am trying to contact either Don VK3DBB or a participant in the 80 m mobile antenna tests (Mobile 80 metre antenna tests, AR, July 2007. Ed.). Specifically I am trying to locate a design for the top performing home brew antenna.

80 m is one of my favourite bands.

Thanks in advance

Shaun VK2XPP

Don VK3DBB responds:

Regarding your query relayed from Shaun for the constructions details of the "reference" antenna used in tests I wrote about, I have now sourced some details which may or may not be of much use.

I am sorry for taking so long to get back to you, but our group only meets once a month and because we had arranged for a change from the 2nd Tuesday to the 3rd Tuesday which occurred this month, it took a bit longer again.

The owner of the long antenna was very reluctant to talk in great detail. Prior to getting his permission to write the article for AR, I had to agree to include the statement in it that no correspondence would be entered into about the tests. I am not sure if email is correspondence, so here is what I managed to learn:

The total length is about 10 feet (approximately 3 metres).

About one foot (approximately 30 cm) from the base connector, there is a two inch (50 mm) diameter coil wound with 14 gauge (1.6 mm) enamelled wire, spaced one wire diameter apart. Connected to the top of this coil is a stainless steel CB whip about 8' 6" (approximately 2.6 metres) long. The whole is the tuned for maximum efficiency on 3.605 MHz.

I hope this helps, but that is all the detail that I could obtain from the owner/builder of the whip.

Regards

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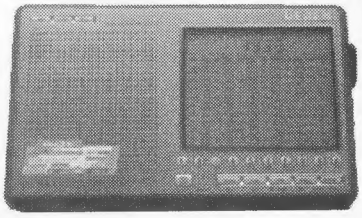

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Amateur Radio Wiki

has been started and can be found at

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We are looking for writers of articles suitable for this website.

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Broadcast details

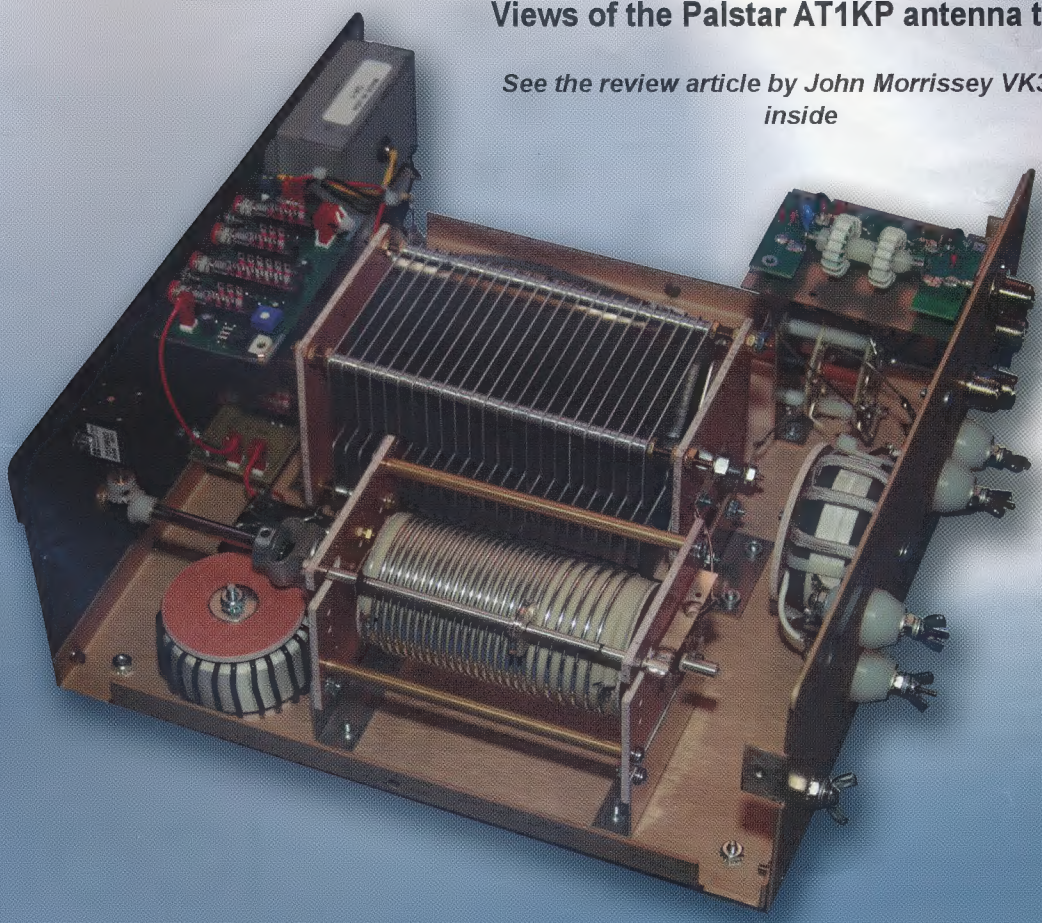
VK1	VK1WIA:	Sunday 1100 local, on 7.128, 146.950 and 438.050 MHz. Email newsletter, on request, via president@vk1.ampr.org
VK2	VK2WI:	Sunday 1000 and 1930 local, on 1.845, 3.595, 7.146, 10.125, 14.170, 28.320, 52.525, 145.600, 147.000, 438.525 and 1273.500 MHz. Plus regional relays on 5.425 MHz USB (morning). VK1WIA news is included in the morning.
VK3	VK1WIA:	Sunday 1030 and 2000 local, on 3.615, 7.158, 10.130, 146.700, 147.250 and 439.800 MHz.
VK4	VK1WIA:	Sunday 0900 local via HF and major VHF/UHF repeaters.
VK5	VK5WI:	Sunday 0900 local, on 1.843, 3.550, 7.140, 28.470, 53.100 AM, 146.900 (SE), 146.925 (CN), 147.000 and 439.975
VK6	VK6WIA:	Sunday 0900 local, on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120, 50.150, 146.700 and 438.525 MHz. Country relays on 3.582 MHz and major repeaters. Repeated Sunday, 1900 local, on 1.865, 3.564, 146.700 and 438.525 MHz. Country relays on major repeaters. Also in 'Realaudio' format from the VK6WIA website.
VK7	VK7WIA:	Sunday 0900 local, on 1.840 AM and 3.570 MHz and on major repeaters. VK7 regional news follows at 0930 local, on 7.090 and 14.130 MHZ, and on major repeaters.
VK8		Sunday 0900 local, on 3.555, 7.050, 10.130 and 146.900 MHz.

Note that many clubs broadcast the WIA News via local VHF and UHF repeaters. Check the News section of the WIA website.

The Palstar AT1KP antenna tuner

Views of the Palstar AT1KP antenna tuner

See the review article by John Morrissey VK3ZRX inside



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